

 Gal. Ind.

Lecture K.



V O L. I.

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P R E F A C E,

BY THE TRANSLATOR.

FEW writers have been more justly admired for originality, and grandeur of conception, than the celebrated Comte de Buffon. It was his lively eloquence that first rescued Natural History from barbarism, and rendered it an engaging and popular study. With concern and indignation he beheld the fairest of all the sciences cramped by artificial systems, encumbered by a coarse and obscure jargon, and disfigured by credulity and ignorance. He was determined to restore and decorate the fabric. Royal munificence happily seconded his views; and he was entrusted with the direction of the finest cabinet in Europe. His lofty genius burst from the shackles of method; he caught with ardour the varied magnificence of Nature's plan; and, with a masterly pencil, dipt in rich and glowing colours, he traced the animated picture. His

elegant and spirited diction adorns whatever subject he treats; his various and extensive learning at once pleases and instructs. His graceful turn of sentiments engages our affections; the sublimity of his descriptions commands our admiration; and if the exuberance of his fancy has sometimes laid him open to censure, we are disposed to overlook his errors for the brilliancy of his composition.

His Theory of the Earth was first published in 1744; his History of Man soon followed; but that of Quadrupeds was not completed till 1767. The History of Birds was next to be undertaken, a task attended with peculiar difficulties. The species of Birds are at least ten times more numerous than those of Quadrupeds, and are subject to endless varieties. Their mode of life exposes them to the immediate influence of the seasons; in a large proportion of them the migrations to remote climates produce important alterations on their external appearance; and their hot temperament sometimes perverts their instincts, and gives birth to unnatural progeny that serve to increase the confusion. The dispositions and œconomy of Birds are in a great measure removed from observation; and our knowledge, with regard to them, is necessarily scanty and imperfect. But M. de Buffon was not to be deterred by the difficulty and extent of the undertaking. The correspondents of the king's
cabinet

cabinet continued to transmit numerous communications, and specimens from all parts of the world. Above eighty artists were under the direction of the younger M. Daubenton, employed five years in the drawing, engraving, and colouring, of upwards of a thousand Birds. But the commencement of the work which these were intended to illustrate was delayed two years, by reason of a severe and tedious indisposition, which during that space afflicted the excellent Naturalist. And after he had recovered his health, he reflected that at his advanced period of life he could not reasonably expect to be able to accomplish the History of Birds, and also that of Minerals, in which he had already made some advances. He judged it expedient therefore to have recourse to the assistance of his friends; and he was peculiarly fortunate in the choice of the learned and eloquent M. Gueneau de Montbeillard, who cheerfully undertook the laborious task, and composed the greatest part of the two first volumes of the History of Birds, which appeared in 1771, under the name however of M. de Buffon. In his complexion of thought and mode of expression, M. de Montbeillard followed so closely his illustrious associate, that the Public could not perceive any change. It was now proper to throw off the mask; and in the publication of the four subsequent volumes, each author prefixed his name to his own articles. The

third volume was nearly printed when new assistance was received from the communications of James Bruce, Esq. of Kinnaird. That accomplished and adventurous traveller in his return from Abyssinia passed some days with M. de Buffon at Paris. The Count was filled with admiration on seeing the numerous and elegant drawings which Mr. Bruce had made of natural objects; and on several occasions he mentions the explorer of the source of the Nile in terms the most flattering and respectful. After the publication of the sixth volume in 1781, M. de Montbeillard was desirous of devoting the whole of his leisure in composing the History of Insects, which had become his favourite study. The three remaining volumes were therefore written by M. de Buffon himself; though he acknowledges that the Abbé Bexon had collected the nomenclature, formed most of the descriptions, and communicated several important hints. The work was completed in 1783; and as only a few copies of the Illumined Plates were on sale, and these extremely costly, a small set of engravings were made to accommodate ordinary purchasers. M. de Buffon had about the same time finished his History of Minerals. He now entertained views of composing the History of Vegetables, in which delightful subject his ingenuity, his taste, and his erudition, eminently qualified him to shine; but unfortunately for the Public the project was defeated

by the death of that great man on the 16th of April 1788.

To expatiate on the advantages arising from an acquaintance with Natural History might be deemed unnecessary. It affords an elegant and rational species of entertainment; and as it requires no previous course of study, it seems admirably fitted to captivate the minds of youth, and to fix their attention. It dispels many early prejudices, raises and warms their opening fancy, enlarges the circle of their ideas, and leads by easy and flowery steps to the pursuit of the abstruser sciences. It conveys useful and interesting information respecting the situation of the various countries, their climate, their productions, and the manners and œconomy of the inhabitants. But above all, the contemplation of that order and design, so conspicuous in the works of Nature, allays the stormy passions, elevates the soul to virtue and happiness, and exhibits the most enchanting prospects of that wisdom and power which upholds and conducts the universe.

Books of Natural History seem, more than any others, to require translation. They must unavoidably abound with uncommon words and phrases, which frequently create difficulties even to proficients in the language; the vivacity of the impression is at any rate weakened; and the reading, instead of fascinating by the pleasure which it is calculated to afford, degenerates per-

haps into an irksome task. The names of quadrupeds, of birds, of fishes, of insects, and reptiles, of plants, and of minerals, are besides hardly ever explained accurately in dictionaries, and are frequently omitted altogether. There are many persons who might be deterred by the expence from purchasing the original, or who, from their situation and circumstances in life, have not had leisure or opportunities of acquiring a competent knowledge of the language in which it is composed. To accommodate this numerous class of readers, to increase the circulation of useful and popular works, is the chief object of translation. A diffusion of taste and information forms the distinguishing feature of our own times. Men of a gloomy or splenetic temper may declaim against the frivolousness of the age: to decry the present and extol the past, is indeed an inveterate, an incurable malady. Other periods have produced great and shining characters, who soared above the prejudices and narrow views of their contemporaries. But a liberality of sentiment, unknown to our rude forefathers, now generally prevails; the sweetest of all the virtues, and that which contributes the most to alleviate the ills and heighten the joys of life, humanity and fellow-feeling, has shed its lovely influence on all ranks; and never did the sun behold such a large portion of mankind so enlightened, so respectable, and so happy.

The

The great expence attending the publication of an extensive work, adorned with numerous plates, has long prevented Buffon's Natural History from appearing in an English dress. It is only a few years since a translation of the first part was given by Mr. Smellie of Edinburgh; and the favourable reception which this has met with, attests sufficiently its merit. But that gentleman has not chosen to complete the task. The History of Minerals indeed, though replete with curious and often solid information, is addressed to a narrow circle of readers. But the History of Birds possesses every quality that could recommend it to the public: it exhibits a clear and comprehensive view of the knowledge acquired in Ornithology, scattered through a multiplicity of volumes and in various languages; it discusses and elucidates, with critical accuracy, the numerous controverted points; it reduces the whole to simplicity, order, and elegance; and, by large additions of valuable matter, it greatly extends the bounds of the science.

In translating this work, I have studied to transfuse the spirit of the author into our language. I was aware of the tendency to adopt foreign idioms, and I was solicitous to avoid that censure. How far I have succeeded, the public will judge. Zoological descriptions aim not only at perspicuity, but require the most minute accuracy; in such parts, therefore, where the subject assumes a loftier tone,

tone, I have stuck close to the original. I have endeavoured to observe a corresponding elevation of style. There are some sprightly turns in the French which the masculine character of our language will not admit ; but these inferior beauties are amply compensated by the strength and dignity of its expression. The philosophy likewise of that ingenious people has a certain diffuse superficial cast, not altogether suited to the manly sense of the British nation. The translator should have a regard to the taste of his countrymen whom he addresses ; and, on proper occasions, he may, with advantage, be permitted to abridge and condense.

I have discovered in the text a few inaccuracies which I have taken the liberty to correct. A few notes which I have subjoined, will serve to elucidate the passages. I have consulted the latest authors who have either written expressly on Ornithology, or who have occasionally handled the subject ; and the additions which I have thereby been enabled to make, will, I trust, prove not unacceptable. I have bestowed particular attention to the nomenclature, which it is the principal aim of systems to fix and ascertain. These productions will, no doubt, rank very low in the estimation of the philosopher ; yet they must still be regarded as useful helps towards the study of Natural History. It was the want of them that so often occasions such obscurity and uncertainty in the writings of the
ancient

ancient naturalists. If to discover the name of an animal or a vegetable, we were obliged to search over and compare a whole series of descriptions, the fatigue would be intolerable. No person objects to a dictionary, because the words follow alphabetically, and not according to their gradation of meaning. If by means of arrangement, how artificial soever, we can, from a few obvious characters, refer an object successively to its order, its genus, and its species, we shall trace out its name, and thence learn its properties with ease and pleasure: and even though contiguous divisions always run into one another, the number of possible trials is at any rate much limited, and the labour of the investigation abridged. To complete Natural History requires the union of Buffon and Linnæus. With this view therefore, I have given an abstract of the Linnæan classification of Birds from the last edition of his *Systema Naturæ*, by Gmelin, in 1788; and to each article of the work I have joined his names and synonyms, with a translation of the specific character. Most of the other additions I owe to Mr. Latham, and particularly to Mr. Pennant: I should be ungrateful did I not acknowledge the assistance which I have received from the various and entertaining works of this amiable naturalist.

But notwithstanding the pains which I have bestowed to render this work complete, I deliver it to the public with the anxiety that naturally

accom-

accompanies a first attempt. It is composed at an early period of life, and in the retirement of the country. Some inaccuracies and blemishes may have eluded my attention. Motives of prudence will determine me to withhold my name: for hard is the lot of the translator; his humble toil is commonly beheld with disdain; and the utmost he can expect is to escape censure. This supercilious treatment has already occasioned pernicious effects. Men of superior talents have generally deserted a path that leads neither to honour nor emolument. Hence the purity of our language has been violated by an inundation of vicious and foreign idioms, and translations have often been written, that really merit contempt. Should the public also frown upon *my* labours, I shall at least console myself with the hope, that the experience of maturer years may correct my errors. But if it will deign to receive this work with indulgence (this is all that I intreat), the approbation will animate my exertions and heighten my enjoyments.

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ON THE
N A T U R E
O F
B I R D S.

THE word Nature has in all languages two very different acceptations. It denotes either that Being, to the operation of which we usually ascribe the chain of effects that constitute the phænomena of the universe; or it signifies the aggregate of the qualities implanted in man, or in the various quadrupeds, and birds, &c. It is *active* nature that, stamping their peculiar characters, thus forms *passive* nature; whence are derived the *instincts* of animals, their *habits*, and their *faculties*. We have in a former work treated of the nature of Man and the Quadrupeds; that of Birds now demands our attention: and though the subject is, in many respects, more obscure, we shall endeavour to select the discriminating features, and to place them in the proper point of view.

Perception, or rather the faculty of feeling; instinct, which results from it; and talent, which consists in the habitual exercise of the natural powers; are widely distinguished in different beings. These intimate qualities depend upon organization in general, and especially upon that of the senses: they are not only proportioned to the degree of the perfection of these; they have also a relation to the order of superiority that is established. In man, for instance, the sense of touch is more exquisite than in all other animals; in these, on the contrary, smell is more perfect than in man: for touch is the foundation of knowledge, and smell is only the source of perception. But, as few persons distinguish nicely the shades that discriminate between ideas and sensations, knowledge and perception, reason and instinct, we shall set aside what are termed *rationation*, *discernment*, and *judgment*; and we shall only consider the different combinations of simple perception, and endeavour to investigate the causes of that diversity of instinct, which, though infinitely varied in the immense number of species, seems more constant, more uniform, and more regular, and less subject to caprice and error, than reason in the single species which boasts the possession of it.

In comparing the senses, which are the primary powers that readily excite and impel the instinct in all animals, we find that of sight to be

be more extended, more acute, more accurate, and more distinct in the birds in general, than in the quadrupeds: I say in general, for there are some birds, such as the owls, that have less clear vision than the quadrupeds; but this, in fact, results from the excessive sensibility of the eye, which, though it cannot support the glare of noon-day, distinguishes nicely objects in the glimmering of the evening. In all birds the organ of sight is furnished with two membranes, an external and internal, additional to those which occur in man: the former*, or external membrane, is placed in the large angle of the eye, and is a second and more transparent eyelid, whose motions too are directed at pleasure, and whose use is to clear and polish the cornea: it serves also to temper the excess of light, and consequently to adjust the quantity admitted, to the extreme delicacy of the organ: the † other is

* This internal eye-lid (*membrana nictitans*) occurs in several quadrupeds; but in most of them it is not moveable as in birds.

† “ In the eyes of a turkey cock, the optic nerve, which was situated very near the side, after perforating the sclerotic and choroid coats, spread into a round space, from the circumference of which a number of black filaments were sent off to form by their union a membrane which is found *in all birds*.” — “ In the eyes of the ostrich, the optic nerve, after perforating the sclerotic and choroid coats, was dilated into a sort of funnel of a similar substance: this funnel is not commonly round in birds, where we have almost always found the extremity of the optic nerve flattened and compressed within the eye: from this funnel a folded membrane took its origin, forming a sort of purse that drew to a point. This purse, which was six lines broad at the base, where it grew out of the optic

is situated at the bottom of the eye, and appears to be an expansion of the optic nerve, which, receiving more immediately the impressions of the rays, must be much more sensible than in other animals; and hence the sight is in birds vastly more perfect, and embraces a wider range. A sparrow-hawk, while he hovers in the air, espies a lark sitting on a clod, though at twenty times the distance at which a man or dog could perceive it. A kite which soars to so amazing a height as totally to vanish from our sight, yet distinguishes the small lizards, field-mice, birds, &c. and from this lofty station he selects what he destines to be victims of his rapine. But this prodigious extent of vision is accompanied likewise with an equal accuracy and clearness; for the eye can dilate or contract, can be shaded or uncovered, depressed or made protuberant, and thus it will readily assume the precise form suited to the quantity of light and the distance of the object.

Sight has a reference also to motion and space; and, if birds trace the most rapid course, we might expect them to possess in a superior degree that sense which is proper to guide and direct their flight. If Nature, while she endowed them with great agility and vast muscular

tic nerve, was black, and seemed imbued, and quite penetrated by that colour, which on the choroid is only spread, and may be rubbed off with the fingers." *Memoires pour servir à l'Hist. des Anim.*

strength,

strength, had formed them short-sighted, their latent powers would have availed them nothing; and the danger of dashing against every intervening obstacle would have repressed or extinguished their ardour. Indeed, we may consider the celerity with which an animal moves, as the just indication of the perfection of its vision. A bird, for instance, that shoots swiftly through the air, must undoubtedly see better than one which slowly describes a waving tract. Among the quadrupeds too, the *sloths* have their eyes enveloped, and their sight is limited.

The idea of motion, and all the other ideas which accompany or flow from it, such as those of relative velocities, of the extent of country, of the proportional height of eminences, and of the various inequalities that prevail on the surface, are, therefore, more precise in birds, and occupy a larger share of their conceptions than in quadrupeds. Nature would seem to have pointed out this superiority of vision by the more conspicuous and more elaborate structure of its organ; for in birds the eye is larger in proportion to the bulk of the head than in quadrupeds*;

* "The ball of the eye in a female eagle was, at its greatest width, an inch and half in diameter; that of the male was three lines less." *Mem. pour servir à l'Hist. des Animaux.*

The ball of the ibis' eye was six lines in diameter.

The eye of the stork four times larger. *Idem.*

The ball of the cassowary's eye was four times larger than its cornea, being an inch and half in diameter, though the cornea was only three lines. *Idem.*

it is also more delicate and more finely fashioned, and the impressions which it receives must excite more vivid ideas.

Another cause of the difference between the instincts of birds and of quadrupeds, is the nature of the element in which they live. The birds know better than man, perhaps, all the degrees of resistance of the air, its temperature at different heights, its relative density, &c. They foresee more than us, they indicate better than our barometers or thermometers, the changes which happen in that voluble fluid. Often have they struggled against the violence of the wind, and oftener have they borrowed its aid. The eagle, soaring above the clouds*, can quickly escape from the scene of the storm to the region of calm, and there enjoy a serene sky and a bright sun, while the other animals below are involved in darkness, and exposed to all the fury of the tempest. In twenty-four hours it can change its climate, and sailing over the different countries, it will form a picture which exceeds the powers of our imagination. Our bird's-eye views, of which the accurate execution is so tedious and so difficult, give very imperfect

* It can be proved that the eagle, and other birds of lofty flight, can rise perpendicularly above the clouds; for they frequently mount entirely out of our sight. But in day-light an object ceases to be visible when it exceeds 3,436 times its diameter; if, therefore, the extent of the bird be five feet, it will be seen at the height of 17,180 feet, or above three miles,

notions of the relative inequality of the surfaces which they represent. But birds can chuse the proper stations, can successively traverse the field in all directions, and with one glance comprehend the whole. The quadruped knows only the spot where it feeds; its valley, its mountain, or its plain: it has no conception of the expanse of surface, no idea of immense distances, and no desire to push forward its excursions. Hence remote journies and migrations are as rare among the quadrupeds as they are frequent among the birds. It is this desire, founded on their acquaintance with foreign countries, on the consciousness of their expeditious course, and on their foresight of the changes that will happen in the atmosphere and of the revolution of seasons, that prompt them to retire together, and by common consent. When their food begins to grow scarce, when, as the cold or the heat incommodes them, they resolve on their retreat, the parents collect their young, and the different families assemble and communicate their views to the unexperienced; and the whole body, strengthened by their numbers, and actuated by the same common motives, wing their journey to some distant land.

This propensity to migration, which recurs every spring and autumn, is a sort of violent longing, which, even in captive birds, bursts out in symptoms of restless and uneasy sensations. We shall, at the article of the Quail, give a detail

of observations on this subject; from which it will appear, that this propensity is one of their most powerful instincts; and that, though they usually remain tranquil in their prison, they make every exertion at those periods to regain their liberty, and join their companions.—But the circumstances which attend migration vary in different birds; and, before we enter into the full discussion which that subject merits, we shall pursue our investigation of the causes that form and modify their instincts.

Man is eminently superior to all the animals in the sense of touch, perhaps too in that of taste; but he is inferior to most of them in the other three senses. When we compare the animals with each other, we soon perceive that smell in general is more acute among the quadrupeds than among the birds: for though we speak of the scent of the crow, of the vulture, &c. it undoubtedly obtains in a much lower degree; and we might be convinced of this by merely examining the structure of the organ. In most of the winged tribes, the external nostrils are wanting, and the effluvia, which excite the sensation, have access only to the duct leading from the palate*: and even in those where the organ is disclosed, the nerves, which take their origin from it, are far from being so numerous, so large, or so expanded, as in the quadruped.

* Hist. de l'Acad. des Sciences, tome i. p. 430.

We may therefore regard touch in man, smell in the quadruped, sight in the bird, as the three most perfect senses, and which influence the general character.

Next to sight, the most perfect of the senses in birds is hearing, which is even superior to that of the quadrupeds. We perceive with what facility they retain and repeat tones, successions of notes, and even discourse; we delight to listen to their unwearied songs, to the incessant warbling of their happy loves. Their ear and throat are more ductile and more powerful than in other animals. Most of the quadrupeds are habitually silent; and their voice, which is seldom heard, is almost always harsh and disagreeable. In birds it is sweet, pleasant, and melodious. There are some species, indeed, in which the notes seem unsupportable, especially if compared with those of others; but these are few in number, and comprehend the large kinds, which Nature, bestowing on them hoarse loud cries, suited to their bulk, would incline to treat like quadrupeds. A peacock, which is not the hundredth part of the size of an ox, may be heard farther; the nightingale could fill a wider space with its music than the human voice: this prodigious extent, and the great powers of their organs of sound, depend entirely on the structure; but that their song should be continued and supported, results solely from their
internal

internal emotions. These two circumstances ought to be considered separately.

The pectoral muscles are more fleshy and much stronger in birds than in man or the quadrupeds, and their action is immensely greater. Their wings are broad and light, composed of thin hollow bones, and connected by powerful tendons. The ease with which birds fly, the celerity of their course, and even their power of directing it upwards or downwards, depend on the proportion of the impelling surface to the mass of the body. When they are ponderous, and the wings and tail at the same time short, like the bustard, the cassowary, or the ostrich, they can hardly rise from the ground.

The windpipe is wider and stronger in birds than in quadrupeds, and usually terminates below in a large cavity that augments the sound. The lungs too have greater extent, and send off many appendices which form air-bags, that at once assist the motion, by rendering the body specifically lighter, and give additional force to the voice. A little production of the cartilage of the *trachea* in the howling baboon *, which is a quadruped of a middle size only, and of the ordinary structure, has enabled it to scream almost without intermission, and so loud, as to be heard at more than a league's distance: but in birds,

* Simia—Beelzebut. Linn.

the

the formation of the thorax, of the lungs, and of all the organs connected with these, seems expressly calculated to give force and duration to their utterance; and the effect must be proportionally greater*.

There is another circumstance which evinces that birds have a prodigious power of voice: the cries of many species are uttered in the higher regions of the atmosphere, where the rarity of the medium must consequently weaken the effect. That the rarefaction of the air diminishes sounds is well ascertained from pneumatical experiments; and I can add, from my own observation, that, even in the open air, a sensible difference in this respect may be perceived. I have often spent whole days in the forests, where I was obliged to listen closely to

* In most water-fowls, which have a very strong voice, the *trachea* reverberates the sound; for the *glottis* is placed below it, and not above it, as in man. *Coll. Acad. Part. Fr. tome i. 496.*—The same is the case in the cock. *Hist. de l'Acad. tome ii. 7.* In birds, especially ducks and other water-fowls, the organs of voice consist of an *internal larynx* placed where the *trachea arteria* parts; of two membranous pipes which communicate below with the two first branches of the *trachea*; of many semilunar membranes, disposed one above another in the principal branches of the fleshy lungs, and which, occupying only one half of their cavity, allow a free exit to the air; of other membranes placed in various positions, both in the middle and in the lower part of the *trachea*; and lastly, of a membrane, of more or less solidity, situated almost transversely between the two branches of the *lunula*, which terminates a cavity that constantly occurs in the upper and internal part of the breast. *Mem. de l'Acad. des Sciences, année 1753.*

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internal emotions. These two circumstances ought to be considered separately.

The pectoral muscles are more fleshy and much stronger in birds than in man or the quadrupeds, and their action is immensely greater. Their wings are broad and light, composed of thin hollow bones, and connected by powerful tendons. The ease with which birds fly, the celerity of their course, and even their power of directing it upwards or downwards, depend on the proportion of the impelling surface to the mass of the body. When they are ponderous, and the wings and tail at the same time short, like the bustard, the cassowary, or the ostrich, they can hardly rise from the ground.

The windpipe is wider and stronger in birds than in quadrupeds, and usually terminates below in a large cavity that augments the sound. The lungs too have greater extent, and send off many appendices which form air-bags, that at once assist the motion, by rendering the body specifically lighter, and give additional force to the voice. A little production of the cartilage of the *trachea* in the howling baboon *, which is a quadruped of a middle size only, and of the ordinary structure, has enabled it to scream almost without intermission, and so loud, as to be heard at more than a league's distance: but in birds,

* Simia — Beelzebut. Linn.

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the distant cries of the dogs, or shouts of the hunters; I uniformly found that the same noises were much less audible during the heat of the day, between ten and four o'clock, than in the evening, and particularly in the night, whose stillness would make hardly any alteration, since in these sequestered scenes there is nothing to disturb the harmony but the slight buzz of insects and the chirping of some birds. I have observed a similar difference between the frosty days in winter and the heats of summer. This can be imputed only to the variation in the density of the air. Indeed, the difference seems to be so great, that I have often been unable to distinguish in mid-day, at the distance of six hundred paces, the same voice which I could, at six o'clock in the morning or evening, hear at that of twelve or fifteen hundred paces.—A bird may rise at least to the height of seventeen thousand feet, for it is there just visible. A flock of several hundred storks, geese, or ducks, must mount still higher, since, notwithstanding the space which they occupy, they soar almost out of sight. If the cry of birds therefore may be heard from an altitude of above a league, we may reckon it at least four times as powerful as that of men or quadrupeds, which is not audible at more than half a league's distance on the surface. But this estimation is even too low: for, beside the dissipation of force to be attributed to the cause already assigned, the
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sound is propagated in the higher regions as from a centre in all directions, and only a part of it reaches the ground; but, when made at the surface, the aerial waves are reflected as they roll along, and the lateral and vertical effect is augmented. It is hence that a person on the top of a tower hears one better at the bottom, than the person below hears from above.

Sweetness of voice and melody of song are qualities which in birds are partly natural, partly acquired. Their great facility in catching and repeating sounds enables them not only to borrow from each other, but often to copy the inflexions and tones of the human voice, and of our musical instruments. Is it not singular, that in all populous and civilized countries, most of the birds chant delightful airs, while, in the extensive deserts of Africa and America, inhabited by roving savages, the winged tribes utter only harsh and discordant cries, and but a few species have any claim to melody? Must this difference be imputed to the difference of climate alone? The extremes of cold and heat operate indeed great changes on the nature of animals, and often form externally permanent characters and vivid colours. The quadrupeds of which the garb is variegated, spotted, or striped, such as the panthers, the leopards, the zebras, and the civets, are all natives of the hottest climates. All the birds of the tropical regions sparkle with the most glowing tints,
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while those of the temperate countries are stained with lighter and softer shades. Of the three hundred species that may be reckoned belonging to our climates, the peacock, the common cock, the golden oriole, the king-fisher, and the goldfinch, only can be celebrated for the variety of their colours; but Nature would seem to have exhausted all the rich hues of the universe on the plumage of the birds of America, of Africa, and of India. These quadrupeds, clothed in the most splendid robes, these birds attired in the richest plumage, utter at the same time hoarse, grating, or even terrible cries. Climate has no doubt a principal share in this phænomenon; but does not the influence of man contribute also to the effect? In all the domesticated animals, the colours never heighten, but grow softer and fainter: many examples occur among the quadrupeds; and cocks and pigeons are still more variegated than dogs or horses. The real alteration which the human powers have produced on nature, exceeds our fondest imagination: the whole face of the globe is changed; the milder animals are tamed and subdued, and the more ferocious are repressed and extirpated. They imitate our manners; they adopt our sentiments; and, under our tuition, their faculties expand. In the state of nature, the dog has the same qualities and dispositions, though in an inferior degree, with the tiger, the leopard, or the lion; for the
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character of the carnivorous tribe results solely from the acuteness of their smell and taste: but education has mollified his original ferocity, improved his sagacity, and rendered him the companion and associate of man.

Our influence is smaller on the birds than on the quadrupeds, because their nature is more different from our own, and because they are less submissive and less susceptible of attachment. Those we call *domestic*, are only prisoners, which, but for propagating, are useless during their lives; they are victims, multiplied without trouble, and sacrificed without regret. As their instincts are totally unrelated to our own, we find it impossible to instil our sentiments; and their education is merely mechanical. A bird, whose ear is delicate, and whose voice is flexible, listens to discourse, and soon learns to repeat the words, but without feeling their force. Some have indeed been taught to hunt and fetch game; some have been trained to fondle their instructor: but these sentiments are infinitely below what we communicate so readily to the quadrupeds. What comparison between the attachment of a dog, and the familiarity of a canary bird; between the understanding of an elephant, and the sagacity of an ostrich?

The natural tones of birds, setting aside those derived from education, express the various modifications of passion; they change even according to the different times or circumstances.

stances. The females are much more silent than the males ; they have cries of pain or fear, murmurs of inquietude or solicitude, especially for their young ; but song is generally withheld from them. In the male it springs from sweet emotion, from tender desire ; the canary in his cage, the greenfinch in the fields, the oriole in the woods, chant their loves with a sonorous voice, and their mates reply in feeble notes of consent. The nightingale, when he first arrives in the spring, is silent ; he begins in faltering unfrequent airs : it is not until the dam sits on her eggs, that he pours out the warm melody of his heart : then he relieves and soothes her tedious incubation ; then he redoubles his caresses, and warbles more pathetically his amorous tale. And what proves that love is among birds the real source of their music is, that, after the breeding season is over, it either ceases entirely, or loses its sweetness.

This melody, which is each year renewed, and which lasts only two or three months during the season of love, and changes into harsh low notes on the subsidence of that passion, indicates a physical relation between the organs of generation and those of voice, which is most conspicuous in birds. It is well known that the articulation is never confirmed in the human species before the age of puberty ; and that the bellowing of quadrupeds becomes tremendous when they are actuated by their fiery lusts. The repletion

pletion of the spermatic vessels irritates the parts of generation, and by sympathy affects the throat. Hence the growth of the beard, the forming of the voice, and the extension of the genital organ in the male; the swell of the breasts, and the expansion of the glandulous bodies in the female. In birds the changes are more considerable; not only are these parts stimulated or altered; after being in appearance entirely destroyed, they are even renovated by the operation of the same causes. The testicles, which in man and most of the quadrupeds remain nearly the same at all times, contract and waste almost entirely away in birds after the breeding season is over, and on its return they expand to a size that even appears disproportioned. It would be curious to discover if there is not some new production in the organs of the voice, corresponding to this swell in the parts of generation.

Man seems even to have given a direction to love, that appetite which Nature has the most deeply implanted in the animal frame. The domestic quadrupeds and birds are almost constantly in season, while those which roam in perfect freedom are only at certain stated times stimulated by the ardour of passion. The cock, the pigeon, and the duck, have, equally with the horse, the ram, and the dog, undergone this important change of constitution.

But the birds excel the other animals in the powers of generation, and in their aptitude for

motion. Many species scarcely rest a single moment, and the rapacious tribes pursue their prey without halting or turning aside, while the quadrupeds need to be frequently recruited.—To give some idea of the rapidity and continuance of the flight of birds, let us compare it with the celerity of the fleetest land-animals. The stag, the rein-deer, and the elk, can travel forty leagues a-day; the rein-deer can draw its sledge at the rate of thirty leagues for several days. The camel can perform a journey of three hundred leagues in eight days. The choicest race-horse can run a league in six or seven minutes; but he soon slackens his career, and could not long support such an exertion. I have elsewhere mentioned the instance of an Englishman who rode sixty-two leagues in eleven hours and thirty-two minutes, changing horses twenty-one times: so that the best horse could not travel more than four leagues in an hour, or thirty leagues in a day. But the motion of birds is vastly swifter: an eagle, whose diameter exceeds four feet, rises out of sight in less than three minutes, and therefore must fly more than 3,500 yards in one minute, or twenty leagues in an hour. At this rate, a bird would easily perform a journey of two hundred leagues in a day, since ten hours would be sufficient, which would allow frequent halts, and the whole night for repose. Our swallows, and other migratory birds, might therefore reach the equator in seven or eight days.

days. Adanfon saw on the coast of Senegal swallows that had arrived on the ninth of October; that is, eight or nine days after their departure from Europe*. Pietro della Valle says, that in Persia † the messenger-pigeon travels as far in a single day as a man can go a-foot in six days. It is a well-known story, that a falcon of Henry II. which flew after a little bustard at Fontainebleau, was caught next morning at Malta, and recognized by the ring which it wore ‡. A Canary falcon, sent to the duke of Lerma, returned in sixteen hours from Andalusia to the island of Teneriffe, a distance of two hundred and fifty leagues. Sir Hans Sloane || assures us, that at Barbadoes the gulls make excursions in flocks to the distance of more than two hundred miles, and return the same day. Taking all these facts together, I think we may conclude that a bird of vigorous wing could every day pass through four or five times more space than the fleetest quadruped.

Every thing conspires to the rapidity of a bird's motion: first, the feathers are very light, have a broad surface, and their shafts are hollow: secondly, the wings are convex above and concave below; they are firm and wide spread, and the muscles which act upon them are power-

* Voyage au Senegal.

† Voyage de Pietro della Valle.

‡ Observations of Sir Edmund Scoty, in Purchas's Collection.

|| A Voyage to the West Islands, with their Natural History, by Sir Hans Sloane.

ful: thirdly, the body is proportionally light, for the flat bones are thinner than in the quadrupeds, and hollow bones have much larger cavities. "The skeleton of the pelican," say the anatomists of the Academy, "is extremely light, not weighing more than twenty-three ounces, though it is of considerable bulk." This quality diminishes the specific gravity of birds.

Another consequence which seems to result from the texture of the bones, is the longevity of birds. In man and the quadrupeds, the period of life seems to be in general regulated by the time required to attain the full growth: but in birds it follows different proportions; their progress is rapid to maturity; some run as soon as they quit the shell, and fly shortly afterwards: a cock can copulate when only four months old, and yet does not acquire his full size in less than a year. Land animals generally live six or seven times as long as they take to reach the age of puberty; but in birds the proportion is ten times greater, for I have seen linnets fourteen or fifteen years old, cocks twenty, and parrots above thirty, and they would probably go beyond these limits*. This difference

* A person of veracity assured me, that a parrot layed at about forty years of age, without commerce with any male, at least of its own kind.—It is said, that a swan has lived three hundred years; a goose eighty; and a pelican as many. The eagle and crow are famous for longevity. *ENCYCLOPÉDIE*, article *Oiseau*.—Aldrovandus relates, that a pigeon lived twenty-two years, and ceased to breed only the last six years.—Willoughby says, that linnets live fourteen years, and goldfinches twenty-three, &c.

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I should attribute to the soft porous quality of the bones ; for the general ossification and rigidity of the system to which animals perpetually tend, determine the boundary of life ; that will therefore be prolonged, if the parts want solidity and consistence. It is thus that women arrive oftener at old age than men ; that birds live longer than quadrupeds, and that fishes live longer than birds.

But a more particular inquiry will evince that uniformity of plan which prevails through nature. The birds, as well as the quadrupeds, are carnivorous, or granivorous. In the former class, the stomach and intestines are proportionally small ; but those of the latter have a craw additional, corresponding to the false belly in ruminating animals, and the capacity of the ventricle compensates for the unsubstantial quality of their destined food. The granivorous birds have also two *cæca*, and a very strong muscular stomach, which serves to triturate the hard substances which they swallow.

The dispositions and habits of animals depend greatly on their original appetites. We may therefore compare the eagle, noble and generous, to the lion ; the vulture, cruel and insatiable, to the tiger ; the kite, the buzzard, the crow, which only prowl among carrion and garbage, to the hyænas, the wolves, and jackals. The falcons, the sparrow-hawks, the gos-hawks, and the other birds trained for sport, are analo-

gous to the dogs, the foxes, the ounces, and the lynxes; the owls, which prey in the night, represent the cats; the herons, and the cormorants, which live upon fish, correspond to the beavers and otters; and, in their mode of subsistence, the woodpeckers resemble the ant-eaters. The common cock, the peacock, the turkey, and all the birds furnished with a craw, bear a relation to the ox, the sheep, the goat, and other ruminating animals. With regard to the article of food, birds have a more ample latitude than quadrupeds; flesh, fish, the amphibious tribes, reptiles, insects, fruits, grain, seeds, roots, herbs; in a word, whatever lives or vegetates. Nor are they very nice in their choice, but often catch indifferently at what they can most easily obtain. The sense of taste is much less acute in birds than in quadrupeds; for, if we except such as are carnivorous, their tongue and palate are in general hard, and almost cartilaginous. Smell can alone direct them, and this they possess in an inferior degree. The greater number swallow without tasting, and mastication, which constitutes the chief pleasure in eating, is entirely wanting to them. Hence, on all these accounts, they are so little attentive to the selection of their food, that they often poison themselves*.

* Parsley, coffee, bitter almonds, &c. prove poisonous to hens, parrots, and many other birds, which eat these substances with avidity when presented with other food.

The attempt is impossible therefore to distinguish the winged tribes according to the nature of their aliments. The more constant and determined appetites of quadrupeds might countenance such a division *; but in birds, where the taste is so irregular, it would be entirely nugatory. We see hens, turkies, and other fowls which are called granivorous, eat worms, insects, and bits of flesh with greater avidity than grain. The nightingale, which lives on insects, may be fed with minced meat; the owls, which are naturally carnivorous, often when other prey fails, catch night-flies in the dark; nor is their hooked bill, as those who deal in final causes maintain, any certain proof that they have a decided propensity for flesh, since parrots and many other birds which seem to prefer grain

* Frisch, whose work is in many respects valuable, divides all birds into twelve classes. The first contains *the small birds, with a thick short bill, which split seeds into two equal portions*; the second includes *the small birds with a slender bill, that eat flies and worms*; the third comprehends *the black-birds and thrushes*; the fourth, *the woodpeckers, cuckoos, hoopoes, and parrots*; the fifth, *the jays and magpies*; the sixth, *the rooks and crows*; the seventh, *the diurnal birds of prey*; the eighth, *the nocturnal birds of prey*; the ninth, *the wild and tame poultry*; the tenth, *the wild and tame pigeons*; the eleventh, *the geese, ducks, and other swimming animals*; the twelfth, *the birds which are fond of water and wet places*.—We easily see that the instinct of opening seeds in two equal portions ought not to be adopted as a character, since in this same class there are birds, such as the titmice, that do not split them, but pierce and tear them; and that, besides, all the birds of this first class, which are supposed to subsist solely on seeds, feed likewise on insects and worms: it was better, therefore, as Linnæus has done, to join them into one class.

have also a hooked bill. The more voracious kinds devour fish, toads, and reptiles, when they cannot obtain flesh. Almost all the birds which appear to feed upon grain, were reared by their parents with insects. The arrangement derived from the nature of the food is thus totally destitute of foundation. No one character is sufficient: it requires the combination of many.

Since birds cannot chew, and the mandibles which represent the jaws are unprovided with teeth, the grains are swallowed whole, or only half-bruised*. But the powerful action of the stomach serves them instead of mastication; and the small pebbles, which assist in trituration, may be conceived to perform the office of teeth†.

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* In parrots, and many other birds, the upper mandible is moveable as well as the under; whereas in quadrupeds the lower jaw only is moveable.

† In no animals is the mode of digestion so favourable as in birds to the system of trituration. Their gizzard has the proper force and direction of fibres; and the voracious kinds, which greedily snatch the seeds on which they feed without stopping to separate the hard crust which envelopes them, swallow at the same time little stones, by means of which the violent contraction of the coats of the stomach bruises and detaches the shell. This is a real trituration, which in other animals is performed by the teeth. But, after the seeds are decorticated, the action of a solvent may take place; and there is a sort of bag from which a large quantity of a whitish liquor flows into the stomach, for in a recently dead bird it may be pressed out. Helvetius subjoins, that sometimes in
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As Nature has invested the quadrupeds which haunt marshes, or inhabit cold countries, with a double fur, and with thick close hair; so has she clothed the aquatic birds, and those which live in the northern tracts, with abundance of plumage, and a fine down; insomuch that, from this circumstance alone, we may judge of their proper element, or of their natal region. In all climates, the birds which dwell in the water are nearly equally feathered, and have under the tail large glands, containing an oily substance for anointing their plumes, which, together with their thickness, prevents the moisture from insinuating. These glands are much smaller in the land-birds, or totally wanting.

Birds that are almost naked, such as the ostrich, the cassowary, and the dodo, occur only in the warm climates. All those which inhabit cold countries are well clothed with plumage. And for the same reason, those which soar into the higher regions of the atmosphere require a thick covering, that they may encounter the

the *oesophagus* of the cormorant, fish are found half digested. *Hist. de l'Academie des Sciences, année 1719.*

Seventy *doubles* were found in the stomach of an ostrich, most of them worn three-fourths, and furrowed by their rubbing against each other, and against the pebbles, but not at all affected by solution, for some which happened to be crooked were quite polished on the convex side, while the concave side was not altered. *Memoires pour servir a l'Histoire des Animaux.*

A Spanish gold pistole swallowed by a duck had lost sixteen grains of its weight when voided. *Collect. Acad. Partie Etrangere.*

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chilness which there prevails. If we pluck the feathers from the breast of an eagle, he will no longer rise out of our sight.

The greater number of birds cast their feathers every year, and appear to suffer much more from it than the quadrupeds do from a similar change. The best fed hen ceases at that time to lay. The organic molecules seem then to be entirely spent on the growth of the new feathers. The season of moulting is generally the end of summer or autumn *, and their feathers are not completely restored till the beginning of spring, when the mildness of the air, and the superabundance of nutrition, urge them to love. Then all the plants shoot up, the insects awaken from their long slumber, and the earth swarms with animation. This ample provision fosters their ardent passions, and offers abundant subsistence to the fruits of their embrace.

We might deem it as essential to the bird to fly, as it is to the fish to swim, or to the quadruped to walk ; yet in all these tribes there are exceptions to the general property. Among

* Domestic fowls generally moult in autumn ; partridges and pheasants, before the end of summer ; and such as are kept in parks, cast their feathers immediately after their first hatch. In the country, the pheasants and partridges undergo that change about the close of July, only the females which have had young are some days later. Wild ducks moult rather before that time.—I owe these remarks to M. Le Roy, king's ranger at Versailles.

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quadrupeds the rufous, red and common bats, can only fly ; the feals, the fea-horses, and fea-cows, can only fwim ; and the beavers and otters walk with more difficulty than fwim : and, laftly, there are others, fuch as the floth, which can hardly drag along their bodies. In the fame manner, we find among birds the oſtrich, the caſſowary, the dodo, the touyou, &c. which are incapable of flying, and are obliged to walk ; others, fuch as the penguins, the fea-parrots, &c. which fly and fwim, but never walk ; and others, in fine, which, like the bird of paradise, can neither walk nor fwim, but are perpetually on the wing. It appears, however, that water is, on the whole, more futed to the nature of birds than to that of quadrupeds : for, if we except a few ſpecies, all the land animals ſhun that element, and never fwim, unleſs they are urged by their fears or wants. Of the birds, on the contrary, a large tribe conſtantly dwell on the waters, and never go on ſhore, but for particular purpoſes, ſuch as to depoſite their eggs, &c. And what proves this poſition, there are only three or four quadrupeds which have their toes connected by webs ; whereas we may reckon above three hundred birds which are furniſhed with ſuch membranes. The lightneſs of their feathers, and of their bones, and even the ſhape of their body, contribute greatly to the facility with which they fwim, and their feet ſerve as oars to impel them along. Accord-
ingly,

ingly, certain birds discover an early propensity to the water; the ducklings sail on the surface of the pool long before they can use their wings.

In quadrupeds, especially those which have their feet terminated by hard hoofs or nails, the palate seems to be the principal seat of touch as well as of taste. Birds, on the other hand, oftener feel bodies with their toes; but the inside of these is covered with a callous skin, and their tongue and mouth are almost cartilaginous: so that, on both accounts, their sensations must be blunt.

Such then is the order of the senses which Nature has established in the different beings. In man, touch is the first, or the most perfect; taste the second; sight the third; hearing the fourth; and smell the fifth and last. In quadrupeds, smell is the first; taste the second, or rather these two senses form only one; sight the third; hearing the fourth; and touch the last. In birds, sight is the first; hearing the second; touch the third; and taste and smell the last. The predominating sensations will also follow the same order: man will be most affected by touch; the quadrupeds by smell; and the birds by sight. These will likewise give a cast to the general character, since certain motives of action will acquire peculiar force, and gain the ascendancy. Thus, man will be more thoughtful and profound, as the sense of touch would appear

appear to be more calm and intimate ; the quadrupeds will have more vehement appetites ; and the birds will have emotions as extensive and volatile as is the glance of sight.

But there is a sixth sense, which, though it intermits, seems, while it acts, to control all the others, and excites the most powerful emotions, and awakens the most ardent affections:—it is love. In quadrupeds, that appetite produces violent effects ; they burn with maddening desire ; they seek the female with savage ardor ; and they embrace with furious extasy. In birds it is a softer, more tender, and more endearing passion ; and, if we except those which are degraded by domestication, and a few other species, conjugal fidelity and parental affection are among them alike conspicuous. The pair unite their labours in preparing for the accommodation of their expected progeny ; and, during the time of incubation, their participation of the same cares and solitudes continually augments their mutual attachment. After the eggs are hatched, a new source of pleasure opens to them, which further strengthens the ties of affection ; and the tender charge of rearing the infant brood requires the joint attention of both parents. The warmth of love is thus succeeded by calm and steady attachment, which by degrees extends, without suffering any diminution, to the rising branches of the family.

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The quadrupeds are impelled by unbridled lust, which never softens into generous friendship. The male abandons the female as soon as the cravings of his appetite are cloyed ; he retires to recruit his strength, or hastens to the embraces of another. The education of the young is devolved entirely on the female ; and as they grow slowly, and require her immediate protection, the maternal tenderness is ripened into a strong and durable attachment. In many species the mother leads two or three litters at one time. There are some quadrupeds, however, in which the male and female associate together ; such are the wolves and foxes : and the fallow-deer have been regarded as the patterns of conjugal fidelity. There are also some species of birds where the cock separates after satisfying his passion ;—but such instances are rare, and do not affect the general law of nature.

That the pairing of birds is founded on the need of their mutual labours to the support of the young, appears clearly from the case of the domestic fowls. The male ranges at will among a seraglio of submissive concubines ; the season of love has hardly any bounds ; the hatches are frequent and tedious ; the eggs are often removed ; and the female never seeks to breed, until her prolific powers are deadened, and almost exhausted : besides, they bestow little care
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in making their nest, they are abundantly supplied with provisions, and by the assistance of man they are freed from all those toils and hardships and sollicitudes which other birds feel and share in common. They contract the vices of luxury and opulence, *indolence* and *debauchery*.

The easy comfortable condition of the domestic fowls, and their generous food, mightily invigorate the powers of generation. A cock can tread twelve or fifteen hens, and each embrace continues its influence for three weeks; so that he may each day be the father of three hundred chickens. A good hen lays a hundred eggs between the spring and autumn; but in the savage state she has only eighteen or twenty, and that only during a single season. The other birds indeed repeat oftener their incubations, but they lay fewer eggs. The pigeons, the turtles, &c. have only two; the great birds of prey three or four; and most other birds five or six.

Want, anxiety, and hard labour, check in all animals the multiplication of the species. This is particularly the case with birds; they breed in proportion as they are well fed, and afforded ease and comfort. In the state of nature, they seem even to husband their prolific powers, and to limit the number of their progeny to the penury of their circumstances. A bird lays five eggs, perhaps, and devotes her whole attention during

during the rest of the season to the incubation and education of the young. But if the nest be destroyed, she soon builds another, and lays three or four eggs more; and if this be again plundered, she will construct a third, and lay still two or three eggs. During the first hatch, therefore, those internal emotions of love which occasion the growth and exclusion of the eggs, are repressed. She thus sacrifices duty to passion, amorous desire to parental attachment. But when her fond hopes are disappointed, she soon ceases to grieve; the procreative faculties, which were suspended, not extinguished, again resume their influence, and enable her in some measure to repair her loss.

As love is a purer passion in birds than in quadrupeds, its mode of gratification is also simpler. Coition is performed among them only in one way*, while many other animals embrace in various postures†: only in some species, as in that of the common cock, the female squats; and in others, such as the sparrows, she continues to stand erect. In all of them the act is transitory, and is still shorter in those which in their ordinary attitude wait the approach of the male, than in those which cower to receive him‡. The external form,

* Aristotle, lib. v. 8.

† The she-camel squats; the she-elephant turns upon her back; the hedgehogs couple face to face, and either in an erect or reclined posture; and monkeys in every manner.

‡ Aristotle, lib. v. 2.

and

and the internal structure of the organs of generation are very different from what obtains in quadrupeds. The size, the position, the number, the action and motion of these parts even vary much in the several species of birds *. In some there appears to be a real penetration; in others, a vigorous compression, or slight touch. But we shall consider the details in the course of the work.

To concentrate the different principles established in this discourse: that the *sensorium* of birds contains chiefly the images derived from the sense of sight; and these, though superficial, are very extensive, and, for the most part, relate to motion, to distance, and to space: that comprehending a whole province within the limits of their horizon, they may be said to carry in their brain a geographical chart of the places which they view: that their facility in traversing wide territories is one of the causes which prompt their frequent excursions and migrations: that their ear being delicate, they are alarmed by sudden noises, but may be soothed by soft sounds, and allured by calls: that their organs of voice being exceedingly power-

* Most birds have two yards, or a forked one projecting from the *anus*. In some species the male organ is exceedingly large; in others hardly visible. The female orifice is not situated, as in the quadrupeds, below the *anus*, but above it; and there is no matrix, &c.

ful and soft, they naturally vent their feelings in loud resounding strains: that, as they have more signs and inflexions, they can, better than the quadrupeds, express their meaning: that easily receiving, and long retaining the impressions of sounds, the organ delights in repeating them; but that its imitations are entirely mechanical, and have no relation to their conceptions: that their sense of touch being obtuse, they have only imperfect ideas of bodies: that they receive their information of distant objects from sight, not from smell: that as their taste is indiscriminating, they are more prone to voracity than sensuality: that, from the nature of the element which they inhabit, they are independent of man, and retain their natural habits; that, for this reason, most of them are attached to the society of their fellows, and eagerly convene: that, being obliged to unite their exertions in building a nest, and in providing for their offspring, the pair contract an affection for each other, which continues to grow, and then extends to the tender brood: that this friendship restrains the violent passions, and even tempers love, and begets chastity, and purity of manners, and gentleness of disposition: that, though their power of fruition is greater than in other animals, they confine its exercise within moderate bounds, and
ever

ever subject their pleasures to their duties :
and, finally, that these sprightly beings, which
Nature would seem to have produced in her
gay moments, may be regarded as a serious
and decent race, which exhibit excellent les-
sons and laudable examples of morality.

EXPLANATION of some TECHNICAL TERMS
that occur in this Work.

Mandible, one of the pieces of which the bill consists.

Vent, the part under the tail.

Cere, the naked skin which covers the base of the bill in some birds; so called from its resembling wax.

Bridle, the plumules on the front immediately over the bill.

Strap, the space running from the bill to the eye.

Orbit, the naked skin encircling the eye.

Quill, a great feather of the wings or tail.

Rufous, tawny-red.

Fulvous, tawny-yellow.

Cinereous, ash-coloured, rather deep.

Ferruginous, dark, rusty-coloured.

The Measures and Weights used throughout are French. The Parisian foot is to the English as 1 is to 1.066: hence the following table is constructed.

Inches.		Inches.		Inches.	
French.	English.	French.	English.	French.	English.
4	- 4.26	13	- 13.85	22	- 23.46
5	- 5.33	14	- 14.92	23	- 24.52
6	- 6.40	15	- 15.99	24	- 25.58
7	- 7.46	16	- 17.05	25	- 26.65
8	- 8.53	17	- 18.12	26	- 27.72
9	- 9.59	18	- 19.18	27	- 28.78
10	- 10.66	19	- 20.25	28	- 29.85
11	- 11.73	20	- 21.32	29	- 30.91
12	- 12.79	21	- 22.38	30	- 31.98

The Parisian pound is divided into sixteen ounces, each ounce into eight gros, and each gros into seventy-two grains. The pound is equal to 7561 English grains Troy; whence the French ounce amounts to $472\frac{1}{2}$ grains Troy; the gros to 59 grains, and a French grain is about four-fifths of an English grain. A French ounce is therefore only one sixty-fourth greater than an ounce Troy, which makes it unnecessary to give a table of reduction.

BIRDS of PREY.

ALL the birds almost might merit this appellation, since by far the greater number search for insects, worms, and other small creatures; but I shall confine it to those which subsist on flesh, and wage perpetual war against the other winged tribes. On comparison, I find that they are much less numerous than the ravenous quadrupeds. The family of the lions, the tigers, the panthers, the ounces, the leopards, the hunting cats, the jaguars, the cougars, the Mexican cats, the margays, and the wild or domestic cats: that of the dogs, the jackals, the wolves, the foxes, and the arctic foxes: the more numerous tribes of the hyænas, the civets, the oriental civets, the dwarf civets, the Madagascar pole-cats: the still more numerous tribes of the pole-cats, the martens, the fitchews, the skunks, the ferrets, Guinea weasels, the ermines, the common weasels, the fables, the ichneumons, the Brazilian weasels, the gluttons, the pekans, the minks, the soussliks; the opossums, the mar-mice, the Mexican opossums, the woolly jerboas, the Surinam opossums: that of the rufous, red, and common bats: To these we may add the whole family of the rats,

which being too weak to attack other animals, prey on each other :—all these rapacious quadrupeds exceed greatly in number the eagles, the vultures, the sparrow hawks, the falcons, the jer-falcons, the kites, the buzzards, the kestrels, the merlins, the owls, the shrikes, and the crows, which are prone to rapine : and many of these, such as the kites, the buzzards, and the crows, prefer carrion to fresh prey. In short, there is only a fifteenth part of the birds carnivorous, while of the quadrupeds more than a third come under that designation.

The birds of prey being much fewer and weaker than the rapacious quadrupeds, commit less depredation on land ; but, as if tyranny never relinquished its claims, whole tribes inhabit the ocean and subsist by their ravages. Of the quadrupeds, scarce any, except the beavers, the otters, the seals, and the sea-horses, live on fish ; yet multitudes of birds derive their support entirely from that source. We have therefore to divide the birds of prey into two classes, corresponding to the elements of air and water, which are the scenes of their havocks. Those which war against the finny race are provided with a straight pointed bill ; their nails are slender, their toes webbed, and their legs bent backwards. Those, on the contrary, which riot in carnage at land, and which are properly the subject of this article, are furnished with talons and with a short curved bill ; their toes are parted, and without

without membranes; their legs are strong, and generally covered by the feathers of the thighs; their nails large and hooked.

We shall for the present set aside also the nocturnal birds of prey, and adopt what appears to be the most natural order in treating of those which commit their ravages during the day. We shall begin with the eagles, the vultures, the kites, and the buzzards; then the hawks, the jerfalcons, and falcons; and close with the merlins and the shrikes. Many of these include a great number of species and of permanent families produced by the influence of climate; and with each we shall range the kindred foreign birds. In this way we shall delineate not only those of Europe, but also all those which inhabit remote countries, whether described by authors, or procured by our correspondence.

There is a singular property common to all the birds of prey, but of which it would be difficult to assign the cause*; that the female is stronger, and a third larger than the male; exactly the reverse to what obtains in the quadrupeds, and even in other birds. In fishes and insects, the female is indeed larger than the male: this is

* The final cause at least is obvious. In the rapacious birds, the care of the brood is entrusted solely to the female; and Nature has wisely endowed her with greater force to enable her to provide both for her own wants and those of her family.—Nothing but the too frequent and often puerile applications of such views of Nature could ever bring them into disrepute. T.

owing to the immense number of eggs which swell their bodies. But this reason will not apply in the case of birds.—In those which are the most prolific, such as the domestic poultry, the ducks, turkies, pheasants, partridges, and quails, the hen lays eighteen or twenty eggs, and yet is smaller than the cock.

All the birds of rapine fly in a lofty course, their wings and legs are strong, their sight exceedingly quick, their head thick, their tongue fleshy, their stomach single and membranous, their intestines narrower and shorter than in other birds; they prefer the solitary tracts, the desert mountains, and they commonly breed in crags, or on the tallest trees. Many species inhabit both continents, and some appear to have no fixed abode. The general characters are, that their bill is hooked, and that they have four toes on each foot, all of which are distinctly parted. But the eagle's head is covered with feathers, which distinguishes it from the vulture, whose head is naked, and only shaded with slight down: And both these are discriminated from the hawks, the buzzards, the kites, and the falcons, by an obvious property; for their bill continues straight to a certain distance before it bends, but in the latter it assumes its curve at the origin.

The birds of prey are not so prolific as other birds. It is strange that Linnæus should assert that they lay about four eggs: for there are some, such as the

the common and sea-eagles, which have only two; and others, as the kestrel and merlin, that have seven. In birds, as in quadrupeds, the general law obtains, that the multiplication is inversely as the bulk. There are some apparent exceptions to this rule, pigeons for instance; but the smallness of the hatch will be found to be compensated by its frequent repetition.

The birds of prey are more obdurate and ferocious than other birds. They are not only intractable, but have the unnatural propensity to drive their tender brood from the nest. Accustomed continually to scenes of carnage, and torn by angry passions, they contract a stern cruel disposition; all the softer feelings are eradicated, and maternal attachment itself is blunted. She regards not the imploring calls of her helpless young, but when straitened for food, she rudely thrusts them upon the world, or murders them in a transport of fury.

This obdurate selfish temper produces in the birds of prey, as well as the carnivorous quadrupeds, another effect. They never associate together, but, like robbers, lead a roving solitary life. Lust indeed draws together the male and female, and, as they can mutually assist in the pursuit of prey, they seldom separate even after the breeding season. But the family never coalesces; and the larger kinds, such as the eagle, will not suffer their young to be rivals, but expel them from their domain: Whereas, all birds
and

and quadrupeds which subsist on the fruits of the earth, live in harmony with their offspring, or assemble joyously in numerous troops.

Before we proceed to the detail of facts, we cannot avoid making some remarks on the common methods of classification. The nomenclator strives to describe the colours of the plumage with minute precision ; he enumerates their disposition, all the shades, the spots, the bars, the stripes, the lines ; and if a bird does not come under the description which he has thus formed he regards it as a different species. But all animals change their early garb and complexion ; and the tints of the rapacious birds are wonderfully altered by the first moulting. A second considerable one succeeds, and this is often followed by a third ; so that a person who should judge entirely from the colours, would imagine that a bird of six months old, another of the same kind of eighteen months, and another of two years and a half, belonged to three different species. But the plumage is also affected by various other causes ; by difference of sex, of age, and of climate ; and therefore the colours can never afford any permanent distinction.

The EAGLES.

MANY birds come under this designation. Our nomenclators reckon eleven species natives of Europe, besides four other, two of which are from Brasil, one from Africa, and another from the East Indies. These eleven species are : first, the Common Eagle ; second, the White-headed Eagle ; third, the White Eagle ; fourth, the Spotted Eagle ; fifth, the White-tailed Eagle ; sixth, the Little White-tailed Eagle ; seventh, the Golden Eagle ; eighth, the Black Eagle ; ninth, the Great Sea-eagle ; tenth, the Sea-eagle ; and, eleventh, the White John. Nothing is easier than to swell the catalogue of names, and by a profusion of divisions and distinctions to dazzle the ignorant. We need only to wade through books, ransack cabinets, and adopt as specific characters all the differences in size or colour that may occur. But the true object of the naturalist is to weigh and reflect ; to endeavour to seize the general views, and to concentrate and arrange ; and thus, by introducing order and precision, to smoothe the progress of the student.

Omitting

Omitting therefore the four foreign species of eagles, which we shall consider in the sequel, and excluding from the list the *White John*, which is entirely a different bird, we may reduce the eleven species to six, of which there are three only that properly deserve the name of Eagles. These three are: first, the Golden Eagle; second, the Common Eagle; third, the Rough-footed Eagle. The remaining three are: first, the *Pygargue*, or Bald Eagle; second, the Osprey; third, the Sea-eagle.

The Golden and Rough-footed Eagles form each an independent and unconnected species; but the Common and Bald Eagles are subject to variety. The species of the Common Eagle includes the brown and the black. The Rough-footed Eagle contains three varieties, viz. the Great White-tailed Eagle, the Little White-tailed Eagle, and the White-headed Eagle. I shall not add the White Eagle, for I am confident that it owes its colour to the influence of excessive cold.

I am induced to adopt this arrangement, both because it was known even in the time of the ancients, that the different kinds of Eagles intermix, and because it nearly coincides with the division marked by Aristotle, who appears to have been better acquainted than any of our nomenclators with the real discriminating characters. He says, that there are six species of Eagles; but among these he includes a bird, which he himself confesses belongs rather to the
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the vultures*, and which we must therefore set aside. Of the five remaining ones, the three first are the same with those on which I have fixed; and the fourth and fifth correspond to the Bald Eagle and the Osprey. I have ventured, notwithstanding the authority of that great philosopher, to separate these last from the Eagles properly so called; in other respects, our ideas exactly correspond.—I shall consider these subjects fully in the following articles.

* The fourth kind of Eagles, is the *Pernopterus*, so called on account of the spots on its wings; its head is whitish, and its body is larger than the three first, but its wings shorter, and its tail longer. It has the aspect of a vulture, which has procured it the epithets of Half-eagle and Mountain Stork. This degenerate bird inhabits the forests; it has all the bad qualities of the others, but inherits none of their generous dispositions, for it is beaten and driven to flight by the crow; it is lean, hungry, and gaunt; perpetually complaining, noisy, and clamorous.

[46]

GOLDEN EAGLE.

Le Grand Aigle, Buff.

Falco Chrysaëtes, Linn.

In Spanish, *Aquila coronada*.

In Polish, *Orzelprzedni*.

In Persian, *An si muger*.

In Syriac, *Napan*.

In Chaldaic, *Nisra*.

In Arabic and Hebrew, *Neser*.

THE first species is the Golden Eagle, which Belon named, after Athenæus, the *Royal Eagle*, or the *King of Birds*. This is indeed an eagle of a noble family and of an independent race. Hence Aristotle denominates it *αετος γυναικος* (*the Eagle of Birth*), and our nomenclators have named it the *Golden Eagle*: It is the largest of the genus. The female measures, from the point of the bill to the extremity of the feet, more than three feet and an half; the wings, when expanded, extend above eight feet, and it weighs sixteen or eighteen pounds. The male is smaller and does not weigh more than twelve. In both, the bill is very strong, and resembles bluish horn; the claws are black and pointed, and the one placed behind, which is the largest, is sometimes five inches long: the eyes are large, but sunk in a deep

No 1



THE GOLDEN EAGLE.

B¹ L.

deep cavity, and covered by the projection of the superior part of the orbit: the iris is of a fine bright yellow, and sparkles with dazzling fire; the vitreous humour is of a topaz colour; the crystalline lens, which is dry and solid, has the lustre and brilliancy of the diamond: the œsophagus dilates into a large bag, which is capable of containing a pint: the stomach, which is under this, is not near so large, but is equally pliant and membranous. The bird is plump, especially in winter. The fat is white, and the flesh, though hard and fibrous, has not that wild flavour common to birds of prey.

This species inhabits Greece, the mountains of Bugey in France, those of Silesia in Germany, the forests of Dantzic, the summits of the Carpathian mountains, the Pyrenees, and the mountains of Ireland. It is found also in Asia Minor, and in Persia; for the Persians had, before the Romans, assumed the eagle as the standard of war; and it was this great eagle, this golden eagle, *aquila fulva*, which was consecrated to Jupiter. The testimony of travellers ascertains its existence in Arabia, in Mauritania, and in many other provinces of Africa and Asia, as far as Tartary; but it has not been discovered in Siberia, or in any other part of the north of Asia. The same remark may be extended to Europe. For this noble bird, which is every where rare, is more frequent in the warm regions than in the temperate countries, and it is

seldom observed to penetrate farther northwards than the latitude of fifty-five degrees. Nor is it found in North America, though the common eagle is an inhabitant of that part of the globe. The Golden Eagle seems to have continued its ancient residence; like the other animals, which, being unable to support an intense cold, could not migrate into the new world.

There are several points, both physical and moral, in which the eagle resembles the lion. Both are alike distinguished by their strength; and hence the eagle extends his dominion over the birds, as the lion over the quadrupeds. Magnanimity is equally conspicuous in both; they despise the small animals, and disregard their insults. It is only after a series of provocations, after being teased with the noisy and harsh notes of the raven or magpie, that the eagle is determined to punish their temerity or their insolence with death. Besides, both disdain the possession of that property which is not the fruit of their own industry; and they reject with contempt the prey which is not procured by their own exertions. Both are remarkable for their temperance. The eagle seldom devours the whole of his game, but, like the lion, leaves the fragments and offals to the other animals. Though famished for want of prey, he disdains to feed upon carrion. Like the lion also, he is solitary, the inhabitant of a desert, over which he reigns supreme,

supreme, and excludes all the other birds from his silent domain. It is more uncommon perhaps to see two pairs of eagles in the same tract of the mountain, than two families of lions in the same part of the forest. They separate from each other at such wide intervals, as to afford ample range for subsistence, and esteem the value and extent of their kingdom to consist in the abundance of the prey with which it is replenished. The eyes of the eagle have the glare of those of the lion, and are nearly of the same colour; the claws of the same shape, the organs of sound are equally powerful, and the cry is equally terrible. Destined both of them for war and plunder, they are equally fierce, equally bold, and intractable. It is impossible to tame them, unless they be caught when in their infancy. It requires much patience and art to train a young eagle for the chase; and, after he has attained to age and strength, his caprices and momentary impulses of passion are sufficient to create suspicions and fears in his master. Authors inform us, that the eagle was anciently used in the east for falconry, but this practice is now laid aside. He is too heavy to be carried on the hand without great fatigue, nor is he ever brought to be so tame or so gentle, as to remove all suspicions of danger. His bill and claws are crooked and formidable: his figure corresponds to his instinct. His body is robust; his legs and wings strong; his flesh hard; his

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bones firm ; his feathers stiff ; his attitude bold and erect ; his movements quick ; his flight rapid. He rises higher in the air than any of the winged race, and hence he was termed by the ancients the *Celestial Bird*, and regarded, in their auguries, as the messenger of Jupiter. He can distinguish objects at an immense distance, but his smell is inferior to that of the vulture. By means of his exquisite sight, he pursues his prey, and, when he has seized it, he checks his flight, and places it upon the ground, to examine its weight, before he carries it off. Though his wings be vigorous, yet his legs being stiff, it is with difficulty that he can rise, especially if he is loaded. He bears away geese and cranes with ease ; he also carries off hares, young lambs and kids. When he attacks fawns or calves, he instantly gluts himself with their blood and flesh, and afterwards transports the mangled carcases to his *eyry* or *airy*, (so his nest is called,) which is quite flat, and not hollow like that of other birds. He commonly places it between two rocks, in a dry inaccessible place. The same nest, it is said, serves the eagle for the whole course of his life. It is indeed a work laborious enough not to be repeated, and solid enough to last for a considerable time. It is constructed nearly like a floor, with small sticks, five or six inches long, supported at the extremities, and crossed with pliant branches, covered with several layers of rushes and heath : the nest is several feet

feet broad, and so firm, as not only to receive the eagle, the female, and the young, but to bear the weight of a large quantity of provisions. It is not covered above, but is sheltered by the projection of the upper part of the rock. In the middle of this structure, the female deposits her eggs, which seldom exceed two or three, and covers them, it is said, for thirty days; but some of these are commonly addle, and it is seldom that three young eagles are found in a single nest. It is even pretended, that after they have acquired some strength, the mother destroys the weakest or the most voracious of her infant brood. Excessive scarcity of provisions alone can occasion this unnatural treatment. The parents, not possessing a sufficiency for their own support, endeavour to reduce the members of their family; and when the young are able to fly, and in some degree to provide for themselves, they expel them from their natal abode, and never suffer them to return.

The plumage is not of so deep a cast in the young eagles as in those that are full grown. At first it is white, then a faint yellow, and afterwards it becomes a bright copper colour. Age, as well as gluttony, disease, and captivity, contributes to render them white. It is said they live above a century, and that their death is not occasioned so much by extreme age, as by the inability to take food, the bill growing so much

curved as to become useless. However, it has been observed, that eagles kept in confinement occasionally sharpen their bill, and that its increase is, for several years, imperceptible. It has also been remarked, that they feed upon every kind of flesh, and even upon that of other eagles. When they cannot procure flesh, they greedily devour bread, serpents, lizards, &c. If they be not supplied with food, they bite cruelly the cats, dogs, and men that come within their reach. At intervals, they pour forth in an equable strain their shrill, loud, and lamentable notes.—The eagle drinks seldom, and perhaps not at all when in perfect liberty, because the blood of his victims are sufficient to quench his thirst. His excrements are always soft, and more watery than those of the other birds, even those which drink frequently.

To this great species we must refer the account in the passage of *Leo Africanus* which we have already quoted, and what travellers in Africa and Asia relate, who agree in asserting that this bird not only carries off kids and young deer, but when taught, that it will even attack foxes and wolves*.

* The Emperor of Thibet has several tame eagles, which are so keen and fierce, that they seize hares, bucks, does, and foxes; and there are some so extremely bold, that they rush impetuously upon the wolf, and harass him so much that he can be more easily caught. MARCO POLO.

[A] Linnæus refers the eagles to the genus of the falcon. The specific character of the Golden Eagle is, "that its cere is yellowish, its feet woolly and rusty coloured, its body of a dusky variegated ferruginous colour, the tail black, with a waved cinereous base." He adds, that its feet are clothed with feathers as far as the nails; and that in fine weather it soars into the aërial regions, but when there is an impending storm, it hovers near the earth.

The RING-TAIL EAGLE.

L' Aigle Commun, Buff.

Falco Fulvus, Linn.

Aquila, Briss. and Klein.

Chrysaetos, *caudâ annulo albo cincta*, Will. and Ray.

The Black Eagle, Penn.

In Spanish, *Aquila Conocida*.

In German, *Adler*, *Arn*, *Aar*.

THIS species of eagle is not so pure or generous as the Golden Eagle. It is composed of two varieties; the brown-eagle, and the black eagle. Aristotle has not distinguished them by name; and it appears that he classed them under the denomination of *Μελαιναετος*; that is, black or blackish eagle. He properly separates this species from the preceding, because it differs: 1. in size; the Ring-tail Eagle, whether black or brown, being smaller than the Golden Eagle: 2. by the colours, which are constant in the Golden Eagle, but vary in the Ring-tail Eagle: 3. by its cry, the Golden Eagle uttering often a doleful plaint, while the Ring-tail Eagle, black or brown, seldom screams: 4. by its natural dispositions; the Ring-tail Eagle feed-
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ing all its young in the nest, training them, and conducting them to prey after they are partly grown; while the Golden Eagle drives them out of its airy, and abandons them as soon as they are able to fly.

It appears easy to prove that the Brown and Black Eagle, which I have classed together, do not really constitute two distinct species. We need only compare them together, even from the characters given by nomenclators with the view of distinguishing them. They are both nearly of the same size; they are of the same brown colour, only sometimes of a deeper shade; in both, the upper part of the head and neck is tinged with ferruginous, and the base of the large feathers marked with white; the legs and feet are alike clothed; in both, the iris is of a hazel colour, the cere of a bright yellow, the bill that of bluish horn, the toes yellow, and the talons black: in short, the whole difference consists in the shades and distribution of the colour of the feathers; which is by no means sufficient to constitute two different species, especially when the number of the points of resemblance so evidently exceeds that of the difference. I have therefore without scruple reduced these two species to one. Aristotle has done the same thing without mentioning it; but it appears that his translator, Theodore Gaza, perceived it; for he does not render *Μελαινᾶετος* by *Aquila nigra*, but by *Aquila nigricans, pulla fulvia*, which includes the

two varieties of this species, both of which are blackish, but the one of which is more tinged with yellow than the other. Aristotle, whose accuracy I often admire, gives names and epithets to the animals which he mentions. The epithet of this bird is λαγωφονος, or the *destroyer of hares*. In fact, though the other eagles also prey upon hares, this species is a more fatal enemy to those timid animals, which are the constant object of their search, and the prey which they prefer. The Latins, after Pliny, termed this eagle *Valeria*, *quasi valens viribus*, because of its strength, which appears greater than that of the other eagles in proportion to the size.

The Ring-tail Eagle is more numerous and spread than the Golden Eagle. The latter is found only in the warm and temperate countries of the ancient continent; the former prefers the cold tracts, and inhabitants of both continents. It occurs in France, Savoy, Switzerland, Germany, Poland, Scotland, and even in North America, at Hudson's Bay*.

* Ellis tells us, that about Hudson's Bay there are many other birds remarkable for their shape and strength: such as the White-tailed Eagle, which is nearly of the size of a turkey-cock; its crown flattened, its neck short, its breast large, its thighs strong, and its wings very long and broad in proportion to its body; they are blackish behind, but also of a lighter colour on the sides; the breast is marked with white, the wing feathers are black; the tail when closed is white above and below, except the tips of the feathers, which are black or brown; the thighs are covered with blackish brown feathers, through which in some places the white down

down appears ; the legs are covered to the feet with a brown, or somewhat reddish plumage ; each foot has four thick strong toes, three before and one behind ; they are covered with yellow scales, and furnished with nails that are exceedingly strong and sharp, and of a shining black.

[A] The specific character given by Linnæus of the Ring-tail Eagle (*Falco fulvus*) is, " That its cere is yellow ; its feet woolly and dull rust-coloured ; and its tail marked with a white ring." The brown sort was stated in the 10th edition of the *Systema Naturæ* as a distinct species, by the name of *Falco Canadensis*, and described as " having a yellow cere, its feet woolly, its body dusky-coloured, its tail white, and tipped with brown." In the 12th and subsequent editions, however, it is considered as merely a variety. It builds its nest in the lofty cliffs. The spaces between its eyes and its ears are naked. Its breast is sprinkled with triangular spots.

We may remark, that both Linnæus and Pennant conceive, that Marco Polo, in his Description of the Usages of the Tartars, alludes to this species, and not to the Golden Eagle, as Buffon supposes.

The Black Eagle, termed by Frisch, *Schwartz-braune Adler* (Black-brown Eagle), which Buffon ranges with the Ring-tail Eagle, is reckoned a different species by Linnæus, under the name of *Falco Melanæetus*.—" Its cere is yellowish, its feet partly woolly, its body black-ferruginous, with yellow streaks." It is two feet ten inches long. The half of the wing feathers next their origin is white with blackish spots, the remaining half blackish. The egg is a dirty white, mottled with rusty-clouded spots.

The ROUGH-FOOTED EAGLE.

Le Petit Aigle. Buff.

Falco Nævius. Linn.

In German, *Stein Adler*, *Gauſe aar*.

THE third species is the Rough-footed Eagle, which Aristotle describes as a plaintive bird, with a spotted plumage, and smaller and weaker than the other eagles. It measures, from the point of the bill to the extremity of the feet, only two feet and a half; and its wings are proportionally smaller, scarcely extending four feet. It has been termed *Aquila planga* [B], *Aquila clanga*, the *Plaintive Eagle*, the *Screaming Eagle*. These names are very applicable; for it continually utters moans, or lamentable cries. It was surnamed *Anataria*, because it commonly preys upon ducks; *Morphna*, because its plumage, which is of a dirty-brown, is marked upon the thighs and wings with several white spots, and its neck is encircled with a large whitish

[B] Systematic writers have considered the *Crying* or *Spotted Eagle* as a different species from the Rough-footed. It is the *Falco Maculatus* of Linnæus. The character: "Its cere and its woolly feet are yellowish, its body dusky-ferruginous below; the axillary feathers and the coverts of the wings are tipped with oval white spots." It is two feet long.

ring.

ring. It is more tractable* than any of the eagles, and not so bold or intrepid. It is termed by the Arabians *Zemiech* †, to distinguish it from the Golden Eagle, which is called *Zumach*. The crane is its largest prey, and it generally confines its ravages ‡ to the ducks, the small birds and rats. This species, though not plentiful in any particular spot, is scattered over the extent of the ancient continent §; but it does not appear that it is found in America: for I presume that the bird called the Oronooko Eagle, which bears some resemblance to this in the variety of its plumage, is yet of a different species.—If this Rough-footed Eagle, which is much more docile, and more easily tamed than the other two, and which is also lighter on the hand, and less dangerous to its master, were equally intrepid, it would have been employed for the purposes of falconry. But it is as cowardly as it is plaintive and noisy. A well-trained sparrow-hawk can attack it, and come off vic-

* This *Aquila clanga* lived familiarly with me for more than three years. It would, when I allowed it, sit upon the table several hours at my left-hand, observing the motion of the right in writing, and sometimes stroked my cap with its head. If I tickled it under the chin, it uttered a shrill sound. It lived peaceably with the other birds. It disliked every food but fresh beef. KLEIN.

† The *Zumach* preys upon hares, foxes, and deer; the *Zemiech* catches cranes, and the smaller birds. *Falconnerie, par* GUIL. TARDIF.

‡ Schwenckfeld.

§ It is found near Dantzic; and also, though rarely, in the mountains of Silesia. SCHWENCKFELD.

torious.

torious. Besides, our authors on the subject of falconry inform us, that, in France at least, the two first species of eagles only have been trained for sport*. To succeed in teaching them, they must be taken when young, for an adult eagle is not only stubborn, but quite intractable. They must be fed upon the flesh of the game which they are intended to pursue. Their education requires more watchful attention than that of the other birds employed in falconry.—We shall give a sketch of that art when we treat of the falcon. I shall only mention here some peculiarities which have been observed with regard to eagles, whether in the state of liberty, or in that of domestication.

The female, which in the eagle as in all other birds of prey is larger than the male, and also seems in the state of nature to be bolder, more intrepid, and more subtle, appears to lose its courage and sagacity when reduced to captivity. The males are preferred for sport; and it is observed that, in the spring, when the season of love returns, they endeavour to escape to their females. And if we employ them dur-

* To this species we may refer the following passage: “There are eagles also in the mountains near Tauris, in Persia; I have seen one sold for five halfpence by the peasants. People of rank chase this bird with the sparrow-hawk. This sport is somewhat curious and extraordinary. The sparrow-hawk flies high above the eagle, darts rapidly upon him, fixes its talons in his sides, and continuing to fly beats his head with its wings. It sometimes happens that both fall together.

ing this critical period, we run a risk of losing them, unless we cool the ardour of their passion by administering violent purges. It has also been remarked, that when an eagle, after leaving the hand, skims along the ground, and afterwards rises perpendicularly, he meditates an escape. He must instantly be solicited to return, by throwing him food. But if flies wheeling above his keeper, and does not stretch to a distance, it is a sign of his attachment and constancy. It has been observed likewise, that an eagle trained for sport, losing its original instinct, often attacks and devours the gos-hawk and other small birds of prey; but in the state of nature, it only contends with them, or plunders them, as rivals.

In the state of nature, the eagle never engages in a solitary chase but when the female is confined to her eggs or her young. This is the season when the return of the birds affords plenty of prey, and he can with ease provide for the sustenance of himself and that of his mate. At other times, they unite their exertions, and they are always seen close together, or at a short distance from each other. The inhabitants of the mountains, who have an opportunity of observing their manœuvres, pretend, that the one beats the bushes, while the other, perched on a tree or a rock, watches the escape of the prey. Often they soar beyond the reach of human sight, and notwithstanding the

immense distance, their cry is still heard, and then resembles the barking of a small dog. Though a voracious bird, the eagle, especially in captivity and deprived of exercise, can endure for a long time the want of sustenance. I have been informed by a man of veracity, that a common eagle caught in a fox-trap, passed five whole weeks without the least food, and that it did not appear sensibly weakened till towards the last week, after which they killed it, to put an end to its lingering pain.

Though the eagles in general prefer desert and mountainous tracts, they are seldom found in narrow peninsulas, or in islands of small extent. They inhabit the interior country in both continents, because islands are commonly not so well stocked with animals. The ancients remarked that eagles were never seen in the isle of Rhodes, and considered it as a prodigy, that when the Emperor Tiberius visited that famous spot, an eagle perched upon the house where he lodged. Eagles make excursions into islands, but do not fix their residence there, or lay their eggs; and when travellers speak of eagles, whose nests they find on the sea-shore or in islands, they mean not those which we have mentioned, but the Ospreys, commonly termed *Sea-eagles*, which are birds of a different instinct, and which feed on fish rather than on game.

I ought

I ought here to relate the anatomical observations that have been made on the internal structure of eagles; and I cannot draw my information from a better source than the Memoirs of those Gentlemen of the Academy of Sciences who dissected two eagles, a male and a female, of the common species. After remarking, that the eyes were deep sunk; that they were of a pink colour, with the lustre of the topaz; that the cornea was arched with a great convexity; that the ligament was of a bright red, the eyelids large, and sufficient to cover the whole eye; they observed, with respect to the interior structure, that the tongue was cartilaginous at the tip, and fleshy in the middle; that the *larynx* was blunt and not pointed, as in most of the birds whose bill is straight; that the *æsofphagus* was very large, and widened below to form the stomach; that this stomach was not a hard gizzard, but pliant and membranous like the *æsofphagus*, and only thicker at the bottom; that these two cavities, both the lower part of the *æsofphagus* and that of the stomach, were very broad, and suited to the voracity of the bird; that the intestines were small, as in all other animals which feed on flesh; that there was no *cæcum* in the male, but in the female there were two pretty broad ones, more than two inches long; that the liver was large and of a bright red, the left lobe larger than the right; that the gall-bladder was large, and about the size of a chesnut; that the

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kidnies

kidnies were small, compared with the other parts, and with those of other birds; that the male-testicles were only of the size of a pea, and of a yellow flesh colour; and that the *ovarium* and *vagina* of the female were like those of other birds.

[A] Linnæus reckons the Rough-footed Eagle as a variety of the *Falco Gallinarius*, because it is smaller, and its wings more variegated. The character of the species is "That the cere and feet are yellow; the upper part of the body dusky; the lower, tawny with dun oval spots; the tail darkish and ringed."

The E R N E.

THE Erne tribe appears to me to consist of three varieties: the *Great Erne**, the *Small Erne*†, and the *White-headed Erne*‡. The two first are distinguished only by their size, and the last scarcely differs at all from the first; and the sole discrimination is, that it has more white on its head and neck. Aristotle || describes the species alone, and omits to mention the varieties: he speaks indeed only of the Great Erne, for he gives it the epithet of *Hinnularia*, which denotes that this bird preys upon fawn, that is, young stags, deer, and roebucks; a character that cannot belong to the Small Erne, which is too weak to attack such large animals.

* *Le Grand Pygargue*, Buff. *Falco Albicilla*, Linn. *Pygargus*, *Albicilla Hirundinaria*, Bel. & Gesn. *Braunfabler Adler*, Frisch. *White-tailed Eagle*, Will. *Cinereous Eagle*, Penn. & Lath.

† *Le Petit Pygargue*, Buff. *Falco Albicaudus*, Linn. *Aquila Albicilla minor*, Briss. *Erne*, Gesn. *Fawn-killing Eagle*, Charl. *Lesser White-tailed Eagle*, Lath.

‡ *Le Pygargue à tête blanche*, Buff. *Falco Leucocephalus*, Linn. *White-headed Eagle*, Penn. *Bald Eagle*, Cat. & Lath.

|| “There are several kinds of Eagles. One is called *Pygargus*, from its white tail. It haunts the plains, groves, and towns. By some it is called *Hinnularia*. It also resorts to the mountains and forests. — The other kinds seldom appear in the plains, or in the groves.” ARIST. *Hist. An.*

The difference between the Ernes and the Eagles consists, First, In the want of plumage on the legs; the Eagles are clothed as far as the pounces; but the Ernes are naked in all the lower part. Secondly, In the colour of the bill; in the Eagles, it is of a bluish black; in the Ernes, it is yellow or white. Thirdly, In the whiteness of the tail; which circumstance has given rise to the name which the Erne has sometimes received of *White-tailed Eagle*. In fact, the tail is white both in the upper and under side through its whole length. They differ from the Eagles also in their instincts and habits. They fix their residence not in deserts, or lofty mountains; they haunt the plains or woods that are near the habitations of men. The Erne appears to shew, like the Common Eagle, a preference to cold countries. It is found in all the northern kingdoms of Europe. The Great Erne is of the same size and the same strength, if not more vigorous, than the Common Eagle: it is at least more bloody and ferocious, and less attached to its young; for it feeds them but a short time, drives them from its nest before they can procure sustenance; and it is pretended that, without the assistance of the Osprey, which generally takes them under its protection, they would perish. It has commonly two or three young, and builds its nest upon large trees. A description of one of these nests occurs in Willoughby, and in several other authors who have

copied it. It is an airy, or floor quite flat, like that of the Great Eagle, sheltered above by the foliage of trees, and formed with small sticks and branches, which are covered with several alternate layers of broom, and other plants. That unnatural disposition which instigates those birds to expel their young before their feeble strength is able to procure an easy subsistence, and which is common to the Erne, the Golden Eagle, and the Spotted Rough-footed Eagle, proves that these three species are more voracious, and more inactive in the pursuit of their prey, than the Ring-tail Eagle, which watches and feeds* generously its infant brood, and afterwards trains them, teaches them to hunt, and does not desert them till their dexterity and vigour are sufficient for their support. The young also inherit the instinct of their parents. The Eaglets of the common kind are gentle and peaceful; but those of the Golden Eagle and the Erne, as soon as they have acquired some stature, are continually fighting and contending about their food, and their place in the nest: so that the father and mother, to terminate the quarrel, often destroy a mutinous subject. The Golden Eagle and the Erne generally point

* "The ossifraga feeds carefully both its own young and those of the eagle; for when it ejects them from the nest, this bird receives them, and breeds them. The eagle turns them out before they can procure food, or fly. In this forlorn state, the ossifraga listens to their complaints, and kindly takes them under its protection." ARIST. *Hist. An.*

their attacks upon large animals ; they often satiate themselves upon the spot, being unable to transport their prey : hence their depredations are less frequent, and, not preserving carrion in their nest, they are often reduced to want. On the other hand, the Common Eagle, which catches every day hares and birds, supplies more easily and more plentifully the necessary subsistence to its young. It has also been remarked, especially with regard to the Ernes, which chuse their haunt near settled spots, that they search for their prey only during a few hours in the middle of the day, and devote the morning, the evening, and the night to sleep ; whereas the Common Eagle (*Aquila Valeria*) is more adventurous, more active, and more indefatigable [A].

[A] The three birds classed together in this article are considered by Linnæus, and other systematic writers, as distinct species :—

First, The Great Erne, or Cinereous Eagle ; *Falco albicilla*, LINN. Its character is, “ That its cere and feet are yellow ; the tail-feathers white, and the intermediate ones tipped with black.” It is of the size of a peacock, being two feet nine inches long ; its head and neck are of a pale ash-colour ; the iris and bill pale yellow, and the bill elongated at its base ; the space between the eyes and the ears naked, with small straggling bristles, and of a cærulean hue. The body and wings are cinereous, with dun intermixed ; the tail white ; the feet woolly below the knees, and of a bright yellow ; the claws black.—It inhabits Europe, particularly Scotland and the adjacent islands, and preys upon large fish.

Second, The Little Erne, or White-tailed Eagle ; *Falco albicandus*, LINN.—“ Its cere and feet are naked and yellowish ; the head and neck ash-coloured, bordering on chestnut ; the body of a dull ferruginous above, and below ferruginous and blackish ; the tail white.” It is of the bulk of a large cock, being two feet two inches long.

The

The bill and iris are inclined to yellow ; the tips of the quill-feathers verging on black ; the nails black.

Third, The White-headed Erne, or Bald Eagle ; *Falco leucocephalus*, LINN.—“ The cere yellowish ; the feet partly woolly ; the body dusky ; the head and tail white.” It is three feet three inches long, and weighs nine pounds. Its head grows white till the second year. It preys on fawns, pigs, lambs, and fish. It watches the motion of the Osprey ; and as soon as that bird has seized a fish, it pursues till the prey drops, and, with astonishing dexterity, catches it before it falls to the ground. It builds in the forests of maples, cypresses, and pines, generally on the margin of water ; and its nests are so much crowded as to resemble a rookery. They are very large, and have a stench from the fragments of carrion. In Bering’s Island, the Bald Eagle nestles on the cliffs, and lays two eggs in the beginning of July.

The O S P R E Y.

Le Balbuzard, Buff.

Falco Haliaëtus, Linn.

The Bald Buzzard, Will.

The Morphnos, or *Glanga*, Ray and Will.

Fisbaar. Wires.

In Italian, *Angusta Piombina*.

In Polish, *Orszelmarsky*.

IF we consider all the facts relating to this bird*, we must conclude that, though it resembles the eagle more than any other bird of prey, it really constitutes a distinct genus†. It is much smaller, and has neither the port, the

* In the beginning of this article Buffon remarks, that the Osprey is often called the *Sea-Eagle*; and that in Burgundy it goes by the name of *crau pécherot*, or *crow-fisher*; a word which, as well as many more, has been introduced into the dialect of the peasants of that province by the residence of the English troops.

† The difference between the male and female of the Osprey is still greater than in the eagles. The one described by Brisson, which was undoubtedly a male, was only one foot seven inches long, measured to the nails, and five feet three inches across the wings; and another which was brought to me, was one foot nine inches in length, and five feet seven inches of alar extent. But the female, described by the anatomists of the Academy of Sciences by the name of *haliaëtus*, was two feet nine inches long, including the tail, which would allow at least two feet for the body; and the alar extent was seven feet and a half. This difference is indeed so great, that, were it not for other indications, we should doubt if the bird described was really the *Osprey* or *Bald-Buzzard*.

figure,

N^o 2



THE OSPREY.

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figure, nor the flight of the eagle. Its natural habits are as different as its appetites; for it feeds chiefly on fish, which it catches in the water, and even several feet below the surface *. And that this is its ordinary subsistence appears, because its flesh has a strong fishy flavour. I sometimes observed this bird remain more than an hour perched upon a tree contiguous to a pool, watching the appearance of a large fish, and ready to dart upon it and transport the victim in its talons. Its legs are naked and commonly of a bluish colour; in some individuals, however, the legs and feet are yellowish, the claws large and sharp, the feet and toes so stiff that they cannot be bent; the belly is entirely white, the tail broad, and the head thick and bulky. It differs from the eagles, because its feet and the lower part of its legs are not feathered, and its hind pounce is the shortest;

* Aristotle, however, ranks the Osprey among the eagles:—
 “The fifth species of eagles is the *Haliaetus* or *Sea-Eagle*; its neck large and thick, its wings curved, its tail broad. It haunts the shores. When it is unable to carry its prey, it often plunges it into the water.” We must observe that the Greeks classed the rapacious birds into three kinds; the Eagle, the Vulture, and the Hawk. This explains the arrangement which Aristotle has here adopted. But it is somewhat singular, that Ray, who is otherwise an intelligent and accurate writer, should affirm that the *Ossifraga* and the *Haliaetus* are the same; since Aristotle distinguishes them, and treats of them in two separate chapters. The only reason which Ray could urge, is the smallness of the Osprey or Bald-Buzzard; but the same reason would also exclude the *Morphnus* from the eagles.

while in the eagles, that is the longest of all. It is distinguished from the eagle by another circumstance; for its bill is of a deeper black, and the feet, the toes, and the cere are commonly blue, while those of the eagle are yellow. The toes of the left foot are not connected by semi-membranes, as Linnæus asserts*; for the toes of both legs are alike parted and devoid of membranes. It is a popular error, that this bird swims with the one foot, and catches fish with the other; and this has occasioned the mistake of Linnæus. Formerly Klein affirmed the same thing of the Great Sea-eagle, but he was equally mistaken; for neither of these birds has membranes connecting the toes of the left foot. The common source of these errors is Albertus Magnus, who writes, that this bird had one foot like that of the sparrow-hawk, and the other resembling that of the goose; an assertion which is not only false, but absurd and inconsistent with every analogy. It is indeed astonishing, that Gesner, Aldrovandus, Klein, and Linnæus, instead of rejecting this silly fable, have blindly adopted it; and that Aldrovandus tells us coolly, that it is not improbable, since he positively adds, he knows there are several water-fowls whose feet are half-cloven, half-webbed; an assertion as false as the first.

* Linnæus has omitted this account in the later editions [a].

I am not surprised that Aristotle called this bird *ἁλιαῖτος*, Sea-Eagle; but I am astonished that all the naturalists, ancient or modern, have copied the name without scruple, and I might say without reflexion; for this bird frequents the sea-shore not from any decided preference. It oftener haunts inland countries that are contiguous to rivers, lakes, and other fresh waters; and it is even more common in Burgundy, which is the centre of France, than on any of our coasts. As Greece is a country which has few rivers, pools, or lakes, and which is much intersected and indented by the incroachment or retreat of the ocean, Aristotle observed that these bird-fishers sought their prey on the beach, and for this reason he named them *Sea-Eagles*. But had this philosopher lived in the heart of France, Germany*, Switzerland†, or any other country distant from the sea; and where these birds are common, he would probably have termed them *fresh-water-eagles*. Aristotle affirms, that this bird has a keen sight; it compels its young, he says, to look at the sun, and kills those whose eyes cannot support the glare. I cannot authenticate this fact, which appears to me rather

* “ This bird is exceedingly fat, and is entirely of a fishy odor. It lives not only on the sea-coast, but haunts the rivers and lakes in Silesia, and sits in the trees watching the fish.” SCHWENCK-FELD.

† Gesner says, that this bird is found in several parts of Switzerland, and makes its nest in certain rocks near waters, or in deep vallies. He adds, that it can be tamed, and employed in falconry.
improbable,

improbable, though it has been related or rather repeated by several authors; and though it has even been generalized and attributed to all the eagles, which are said to force their brood to look steadily at the sun. This is an observation which it would be difficult to make; and Aristotle was besides not much acquainted with the facts relating to the young of this bird. He alleges that they rear only two, and kill that one whose eyes cannot bear the dazzling rays of the sun. But we are certain that they often lay four eggs, and seldom three only, and that they raise all which are hatched. Instead of inhabiting rocky precipices and lofty mountains, as do the eagles, it prefers the haunts of low and marshy grounds, in the vicinity of pools and lakes that abound with fish. It appears that we must ascribe to the *Osprey*, and not to the *Sea-Eagle*, what Aristotle mentions with regard to the pursuit of sea-birds; for the Sea-eagle fishes rather than hunts; nor have I heard that it strays to a distance from the beach in the chase of gulls and other sea-birds: on the contrary, it seems to subsist entirely upon fish. Those who have dissected this bird, have found nothing but fish in its stomach; and its flesh, which, as I have said, has a very strong smell of fish, is a sufficient proof that this constitutes its ordinary food. It is commonly very fat, and can, like the eagles, support for several days the want of sustenance, without suffering inconvenience or loss of strength. It
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is not so bold or so ferocious as the eagle or erne; and it is pretended that it could be as easily instructed for fishing, as the other birds are trained for the sport.

After comparing authorities, I am of opinion that this species is one of the most numerous of the large birds of prey; and is scattered over the extent of Europe, from Sweden to Greece; and that it is even found in warmer countries, as in Egypt and Nigritia.

The internal parts of this bird differ little from those of the eagles. The academicians have perceived the most considerable distinction in the liver, which in the Sea-eagle is very small. The *cæcum* of the female also is not so large; and the spleen, which in the eagle is closely attached to the right side of the stomach, is in this bird placed under the right lobe of the liver. Like those of most other birds, its kidneys are proportionally large, whereas those of the eagle are small [A].

[A] The specific character which Linnæus gives of the Osprey, *Falco Haliaëtus*, is, "that its cere and feet are cærulean, its body " dusky above and white below, and its head whitish." Besides the *Carolina Osprey*, which is ranged by Buffon among the foreign analogous birds, there are two other varieties: 1. The *Reed Osprey*, *Falco Arundinaceus*, GMEL.—"Its cere is ash-coloured, its " feet pale, its body grey above and whitish below, and its tail " is equal." 2. The *Cayenne Osprey*, *Falco Cayanensis*, GMEL.—"Its body is dusky ferruginous, and there is a white line drawn " from the upper mandible through each eye to the hind part of " the head, which is also white."

The SEA - EAGLE.

L'Orfraie, Buff.

Falco Ossifragus, Linn.

Aquila Ossifraga, Briss. and Klein.

In Italian, *Aquilaastro anguista barbata*.

In German, *Grosser hasenahr*.

In Polish, *Orzel-Lomignat*.

THIS bird has been called by our nomenclators, the *Great Sea-Eagle*. It is indeed nearly as large as the Golden Eagle; and its body seems proportionally longer, though its wings be shorter. It measures, from the end of the bill to the point of the nails, three feet and an half; but its expanded wings do not reach above seven feet: whereas the length of the Golden Eagle is generally only three feet two or three inches, and the extension of its wings eight or nine feet. The Sea-Eagle is remarkable for its size, and is distinguished: 1. By the colour and figure of its nails, which are of a shining black, and form an entire semicircle. 2. By its legs, which are naked below, and covered with small yellow scales. 3. By the beard of feathers which hangs from the chin, and which has occasioned its receiving the name of *Bearded-Eagle*. The Sea-Eagle loves to haunt the sea-shore, and often frequents inland tracts,

N^o 3



THE SEA EAGLE



tracts, near lakes, marshes, or rivers that are stocked with fish. It catches the largest of the finny tribe; but it also attacks game, and, as it is large and strong, it seizes and carries off geese and hares, and even lambs and kids. Aristotle assures us, that the female Sea-Eagle not only watches her infant brood with the greatest affection, but extends her protection to the young eaglets, which have been expelled by their unfeeling parents, and generally feeds and trains them as if they were her own offspring. This singular fact has been repeated by all the naturalists, but it does not appear to be authenticated. We have reason however to admire the general accuracy of his History of Animals. We have a remarkable proof of this in point:—Aristotle observes, that the sight of the Sea-Eagle is weak, on account of a shade which covers the eye; and hence he was probably induced to separate it from the eagles, and class it with the owls and night birds. To judge of this fact by the consequences, we should infer, that it is not only doubtful, but false; for all who have watched the manœuvres of the Sea-Eagle, have found that it sees during the night so distinctly as to be able to catch game, and even fish; but they have not observed that its sight was feeble during the day. On the contrary, it perceives at a great distance, the fish upon which it is to dart; it pursues with eagerness the birds on which it is to prey; and though it flies with less rapidity than

than the eagles, this is owing to the shortness of its wings, and not the indistinctness of its vision. A respect for the great philosopher of antiquity has induced the celebrated Aldrovandus to examine the eye of the Sea-Eagle with minute attention; and he has discovered that the aperture of the pupil, which is commonly covered only with the cornea, is in this bird lined besides with an exceedingly delicate membrane, which has actually the appearance of a small spot. He also observed, that the inconvenience of this structure is compensated by the perfect transparency of the circular part surrounding the pupil, which ring in other birds is opaque and of a dull colour. Thus the observation of Aristotle is good, since he has remarked that the eye of the Sea-Eagle is covered with a thin cloud; but it does not necessarily follow, that its sight is fainter than that of other birds, because the light can pass easily and largely through the small circle which bounds the pupil; all that can be inferred is, that the middle of the picture must be marked with a small obscure spot, and that the lateral vision ought to be more distinct than the direct. It is not however manifest from what has been said, that it sees worse than the other birds. It soars not indeed to the same height as the eagle, nor flies with equal rapidity; nor does it descry or pursue its prey from so remote distances. It is probable, therefore, that the sight of the Osprey is not so acute
or

or distinct as that of the eagle; at the same time it is not, like the owls, blinded by the dazzling light, but searches for victims in the day as well as in the night*, particularly in the mornings and evenings. Besides, if we compare the eye of the Sea-Eagle with that of the owl and other nocturnal birds, we shall perceive a difference of structure. In the day-time these birds see faintly, if at all; their delicate organs being unable to bear the shock of a blaze of light; their pupil is entirely open, and not lined with that membrane or small spot, which is found in the eye of the Sea-Eagle. The pupil in all nocturnal birds, cats, and some other quadrupeds, which see in the dark, is round and large, when it receives the impression of a faint light in the dusk of the evening. On the contrary, it becomes elongated in cats, but in the nocturnal birds, it retains its globular figure, though it contracts its size, when the eye is exposed to a strong glare. This contraction evidently proves that these birds see *ill*, because they see too *well*; since their delicate organs are sensible to the faintest impression. Wherefore, *à fortiori*, the Sea-Eagle, with its spot upon the pupil, would require more light than any other, if this de-

* I have been informed by persons who observed the fact, that the Sea-Eagle catches fish during the night, and that the noise of its plunging into the water is heard at a great distance. Salerne also remarks, that when it darts into a pool to seize its prey, the noise it occasions is terrible, especially in the night.

fect were not compensated. But what forms a complete apology for Aristotle's arranging it among the nocturnal birds is, that the sight of the Sea-eagle is not so acute as that of the Common Eagle; and because it commits its ravages by night as well as by day.

If the facts related by Aristotle in his History of Animals, be distinguished by their accuracy, his treatise *De Mirabilibus* is no less remarkable for its absurdities and errors. The author even makes assertions in it which are totally inconsistent with what he has delivered in his other works; and if we were to compare the opinions, but particularly the facts, with those in his History of Animals, we never should ascribe the treatise *De Mirabilibus* to that enlightened philosopher. Pliny, whose Natural History is entirely extracted from Aristotle, would not have related so many things that are false or equivocal, had he not borrowed indiscriminately from the different treatises attributed to the Greek, and collected the opinions of subsequent authors which are tinged constantly with popular prejudices. We can give an example without deviating from our present subject. Aristotle distinguishes the species of the Osprey in his History of Animals, since he makes it the fifth species of eagles, to which he gives accurate discriminating characters. At the same time, the Osprey constitutes not a distinct species in the treatise *De Mirabilibus*, or rather is only a variety.

variety. Pliny, enlarging on this idea, affirms not only that the Ospreys form no separate race, and that they proceed from the intermixture of the different species of eagles, but that the young are not Ospreys, and only Sea-Eagles; *which Sea-Eagles, says he, breed small vultures, which engender great vultures, that have not the power of propagation.* What a number of incredible circumstances are grouped into this passage? How many things that are absurd, and contrary to every analogy? Let us even extend, as much as possible, the probable limits of the variations of Nature, and let us give this passage the most favourable explanation. Suppose for a moment, that the Ospreys are really the hybridous offspring of the union of two different species of eagles; that they are prolific, like the cross-breed of some other birds, and produce between them a second mongrel, which approaches nearer the species of Sea-Eagle than if the first mixture were that of the Sea-Eagle with another eagle; so far the laws of Nature are not entirely violated: but to add, that these Ospreys, after they become Sea-Eagles, breed small vultures, and these again the great, which are incapable of generation, is to join three facts that are absolutely incredible, to two that already can hardly be believed. And though Pliny has written many things hastily, I can hardly persuade myself that he is the author of these three assertions; and I am rather inclined to suppose,

that the end of the sentence has been entirely altered. At any rate it is certain that the Sea-Eagles never breed small mongrel vultures, nor do these give birth to large hybridous vultures, whose prolific powers are extinguished. Every species of vulture produces its like, and the same is the case with each of the eagles, the Osprey and the Sea-Eagle; and the intermediate kinds, bred by the intermixture of the eagles, constitute independent tribes, and are perpetuated like the others by a generation. Particularly, we are well informed, that the male Osprey breeds with its female young Ospreys; and that, if it ever begets Sea-Eagles, this is only in the union with the Sea-Eagle. The copulation of the male Osprey with the female Sea-Eagle is similar to that of the he-goat with the ewe: a lamb is the fruit of this commerce, because the influence of the ewe predominates in the conception. A Sea-Eagle is also the product of the other intercourse; for, in general, the character of the female preponderates, and the prolific mongrels approach to the species of the mother; and even the true hybrids, or the barren mongrels, bear a greater resemblance to the race of the female than to that of the male.

What renders the possibility of the cross-breed of the Sea-Eagle and the Osprey credible, is the similarity of the instincts, the dispositions, and even the figure of these birds; for though
they

they differ widely in point of size, the Sea-Eagle being near one half larger than the Osprey, they are yet very much alike in their proportions. Their wings and legs are short, compared with the length of their body; the lower part of their legs and feet are naked; they fly neither so high nor so rapidly as the eagles; they derive their subsistence more from the finny tribe than from the beasts of game; and they haunt places contiguous to lakes or fishy streams; and both of them are common in France and other temperate countries. The Sea-Eagle, as it is larger, lays only two eggs, and the Osprey four*. The cere of the Osprey and the legs and feet are generally blue, but the same parts of the Sea-Eagle are of a bright deep yellow. There is also some difference in the distribution of the colours of the plumage, but this is too slight to prevent their intermixture; and ana-

* The Sea-Eagle builds on the loftiest oaks a very broad nest, into which it drops two very large eggs, that are quite round, exceedingly heavy, and of a dirty white colour. Some years ago one of these was found in the park of Chambord; I sent the two eggs to Reaumur, but the nest could not be detached. Last year a nest was discovered at St. Laurent-des-eaux, in the wood of Briou, but there was only one eaglet, which the post-master of that place has raised. At Bellegarde, in the forest of Orleans, a Sea-Eagle was killed, which during the night fished the largest pikes in a pond that belonged formerly to the Duc d'Antin. Another was killed lately at Seneley in Sologne, in the moment it was carrying off a large carp in broad day. The Osprey lodges among the reeds, along the margin of waters; it lays each hatch four white eggs of an elliptical shape: it feeds on fish. SALERNE.

logical reasons induce me to suppose that the union is prolific, and that the male Osprey, by coupling with the female Sea-Eagle, produces Sea-Eagles; but that the female Osprey, by pairing with the male Sea-Eagle, gives birth to Ospreys; and that such hybrids, whether they be Sea-Eagles or Ospreys, inherit almost entirely the nature of their mother, and retain but slight traces of the character of the father; which circumstance distinguishes them from legitimate Ospreys or Sea-Eagles. For example; Ospreys sometimes occur with yellow feet, and Sea-Eagles with blue feet, though the reverse commonly takes place. This variation of colour must arise from the mixture of the two species. For the same reason, Ospreys are found, such as what the members of the Academy have described, that are much larger than ordinary; and at the same time some Sea-Eagles are much smaller than common; and the diminutive size of these can be ascribed neither to the sex nor to the age, but must arise from a mixture with the smaller species; that is, of the Osprey with the Sea-Eagle.

As this bird is very large, and consequently little prolific, laying only two eggs once a year, and often raising but a single young one, the species is no where numerous. It is however widely diffused; it is found in almost every part
of

of Europe, and it even appears to frequent the lakes of North America*. [A]

* I conceive that the following passage alludes to the Sea-Eagle; "There are a number of eagles, which in their language are called *sondaqua*. They commonly build their nests on the margin of water, or of some precipice which overtops the highest trees or rocks, so that it is difficult to reach their nests. We have however got several, but never found more than two eaglets. I intended to breed some when we were on the road from Lake Huron to Quebec; but they being heavy to carry, and we not being able to give them fish to feed on, we dressed them into an excellent dish, for they were then young and tender." *Voyage au Pays des Hurons par Sagar Theodat.*

[A] The Sea-Eagle, *Falco ossifragus*, LINN. is thus described: "Its cere is yellowish, its feet partly woolly, its body ferruginous, the tail-feathers white along the inside." It resembles the Golden Eagle, and is of the size of a turkey. It is sometimes drowned in attempting to catch overgrown fish; not being able to disengage its talons, it is dragged forcibly under water. The Tartars entertain a notion that the wound of its claws is mortal, and therefore they dread its attack.

The WHITE JOHN*.

Jean le Blanc, Buff. and Lath.

Falco Gallicus, Linn.

Falco Hypoleucos, Decouv. Ruff.

Aquila Pygargus, Briss. Johnst. Belon.

L'Albanella, Let. et Sard.

Blanche-Queue, Hist. de Lyon.

I HAD this bird alive, and kept it for some time. It was taken young in the month of August 1768, and it appeared in January 1769 to have attained its full size. Its length, from the point of the bill to the extremity of the tail, was two feet; and to the pounces one foot eight inches: the bill from the hook to the junction of the mandible seventeen lines; the tail was ten inches long; its wings when expanded measured five feet one inch, and when closed they reached a little beyond the end of the tail. The head, the upper surface of the neck, the back, and the rump, were of an ash-brown; all the feathers which cover these parts were white at their origin, but the rest of them brown; so that the brown concealed the white, except the

* “ Some have called it *The White-tailed Knight*, because perhaps it is rather tall.—The male is lighter and whiter than the female, particularly on the rump; the tail very long, the legs slender, and of a pleasant yellow.”—SALERNE.

plumage

N^o 4



THE WHITE JOHN.

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plumage was raised. The throat, the breast, the belly, and the sides were white, variegated with long spots of a brown rusty colour; there were transverse bars of a deeper brown upon the tail; the cere was of a pale blue, and in it were placed the nostrils. The iris was of a beautiful yellow citron, or of the colour of the oriental topaz; the feet were of a pale flesh hue, which, as well as the cere, passed into yellow as the bird grew older. The interstices of the scales which covered the skin of the legs, appeared reddish; so that the whole, seen at a distance, appeared, even in its tender age, to be yellow. This bird weighed three pounds seven ounces after a meal, and three pounds four ounces when its stomach was empty.

The *White John* is more widely removed from the eagles than any of the preceding. It resembles the *Bald Eagle* only by the want of plumage on the legs, and the whiteness of the rump and tail; but its body is differently shaped, and is much thicker, compared with its bulk; for its extreme length is only two feet, and the expansion of its wings seven feet; while the girth of its body is as great as that of the Ring-tail Eagle, the length of which is two feet and an half, and the alar extent more than seven. Hence the *White John* resembles in its shape the Osprey, whose wings are also short in proportion to its body; but its feet are not, as in that

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bird,

bird, blue: its legs also appear to be more slender and tapered than any of the Eagles. Thus, though it bears some analogy to the Eagles, the Osprey, and the Sea-eagle, it is yet quite a distinct species. It has some resemblance also to the Buzzard in the disposition of its colours, of its plumage, and also in a circumstance which has often struck me, viz. that, in certain attitudes, and especially in the front view, it appears like an Eagle; and that, seen sideways or in other attitudes, its figure is similar to that of the Buzzard. This remark was also made by my designer and others; and it is singular that this ambiguity of figure corresponds to its equivocal disposition, which is really analogous both to that of the Eagle and that of the Buzzard; inasmuch that the White John may, in certain respects, be considered as forming the intermediate shade between these two birds.

It appeared to me that this bird saw very distinctly in the day-time, and was not afraid of the strongest light; for it spontaneously directed its eyes to the most luminous quarter, and even to the solar effulgence. It ran with considerable swiftness when scared, and assisted its motion by its wings. When confined to its chamber, it sought to approach the fire; but cold did not seem to be absolutely pernicious to it, for it passed several nights in open air in frosty weather without appearing to suffer inconvenience.

It

It fed upon raw bloody flesh ; but, when pinched with hunger, it ate meat that had been cooked. It tore the flesh that was offered it with its bill, and swallowed it in large morsels. It never drank when any person was beside it, or was within its sight ; but when it was in a concealed place, it was observed to drink, and to use more precaution than might be expected. A vessel filled with water was left within its reach ; it looked anxiously on every side, to ascertain that it was quite alone ; it then approached the vessel, but still cast an attentive look around : at last, after many hesitations, it plunged its bill up to the eyes in the water, and repeated its draught. It is probable that other birds of prey conceal themselves in the same manner when they want to drink ; the reason probably is, that these birds can take no liquid but by immersing their head beyond the opening of the mandibles, and even as far as the eyes ; in which case, they are thrown off their guard, and have reason to entertain fears : however, this is the only circumstance in which the White John shewed any mistrust ; and in other things he appeared indifferent, or rather stupid. He was not at all mischievous, and suffered himself to be handled without discovering resentment. He uttered the sound, *co, co*, a slight expression of contentment when food was offered him ; but he shewed no particular attachment to any individual. He grew fat in the autumn, and got
more

more flesh, and became plumper than most other birds of prey*.

This bird is very common in France; and, as Belon says, there is hardly a cottager who is not acquainted with it, and who dreads not its ravages among his poultry. The peasants have given it the name of *White John* †, because it is remarkable for the whiteness of its belly, of the under surface of its wings, of its rump, and of its tail: these characters, however, are distinctly

* The following note respecting this bird was given to me by the person entrusted with my volaries:—"I offered the White John several kinds of food; as bread, cheese, grapes, apples, &c. but he would taste none of them, though he had fasted twenty-four hours. I kept him in that state three days longer, and he still rejected them. In short, we may conclude, that hunger will never drive him to eat any thing of that sort. I gave him worms, but he constantly rejected them; and though one was forced into his bill, and half swallowed, he threw it out. He greedily swallowed mice entire; and I observed, that after swallowing two or three, or even a single large one, he shewed uneasiness, and marks of pain, drooping and inactive, and stupid with digestion. I presented frogs and small fish; the latter he rejected, but ate the frogs by half-dozens, and sometimes more; but he did not swallow them whole as he did the mice; he fixed his talons, and tore them into pieces. I withheld food from him three days, and he still refused raw fish. I observed that he vomited the skins of the mice in little balls of an inch, and I found, by steeping them in water, that they contained only the hair and the skin, and not the bones: in some of these balls were particles of cast iron, and bits of coal."

† "The inhabitants of the villages know this bird to their cost; for it plunders their poultry more daringly than the kite." BELON.

"This White John attacks the hens in the villages, and catches birds and rabbits. It is very destructive to partridges, and preys on small birds; for it plunders, concealed along the hedges, and the skirts of the forests; so that not a peasant is unacquainted with it." *Id.*

marked only in the male ; for the female is almost entirely grey, and the feathers of the rump alone of a dirty white. As in the other birds of prey, she is larger than her mate ; she nestles almost close upon the ground, in tracts covered with heath, fern, broom, or rushes ; sometimes, however, she builds on firs, and other high trees. She commonly lays three eggs, which are of a grey slate-colour ; the male provides largely for her subsistence during the time of incubation, and even while she is employed in watching and educating her young. He haunts the vicinity of inhabited places, especially near hamlets and farms ; he plunders chickens, young turkeys, and tame ducks ; and when poultry cannot be had, he catches young rabbits, partridges, quails, and other small birds ; nor does he disdain the more humble prey of field-mice and lizards. As this bird, particularly the female, has short wings and a thick body, the flight is laborious, and they never rise to a great height ; they constantly skim along the ground, and commit their ravages upon the earth rather than in the air *. Their cry is a kind of shrill whistling, which is seldom heard. They scarcely ever seek their prey but in the morning and the evening ; and the middle of the day is devoted to indolence and repose.

* “ When we observe it flying, it appears like a heron ; for it rustles with its wings, and does not soar like many other birds of prey, but generally flies near the ground, especially in the morning and evening.”—BELON.

One should be apt to suppose that there is a variety in this species; for Belon gives a description of a second bird, "which is," he says, "another species of the St. Martin, also named "*White-tail*, of the same species with the above-mentioned White John, and which resembles the Royal Kite so exactly that we could discover no difference, except that it is smaller, and whiter under the belly, the feathers of its rump and tail being on both sides of a white colour." These points of resemblance, to which we may add what is still more important, that its legs are longer, prove only that this species is allied to that of the White John: but as it differs considerably in its size, and in other circumstances, we can but infer that it is a variety of the White John; and we have perceived that it is the same bird which our nomenclators have called the *Cinereous Lanner*; and which we shall mention under the name of St. Martin, because it has not the least resemblance to the *Lanner*.

The White John, though very common in France, is unfrequent in every other country; since none of the naturalists of Italy, England, Germany, or the North, mention it, except from the authority of Belon. For this reason I have dwelt more fully upon the facts relating to its history. I must also observe, that Salerne commits a great mistake, when he says that this bird is the same with the *Ringtail* of the English,

lish, the male of which is termed *Hen-barrier*. The character of the White-tail, and the proneness to prey on poultry, common to the Ring-tail and the White John, have deceived him, and induced him to consider these birds as the same; but if he had compared the descriptions of preceding authors, he would have easily perceived that they belong to different species. Other naturalists have taken the *Blue-hawk* of Edwards for the *Hen-barrier*, though these birds are also of different kinds. We shall endeavour to clear up this point, which is one of the most obscure in the natural history of the rapacious tribe.

Birds of prey are divided into two orders: the first of which includes the warlike, the noble, and the intrepid; such as Eagles, Falcons, Ger-falcons, Gos-hawks, Lanners, Sparrow-hawks, &c.: the second comprehends those that are indolent, cowardly, and voracious; such as, the Vultures, the Kites, the Buzzards, &c. Between these two orders, so opposite in their instincts and habits, are found, as every where else, some intermediate shades, or some species which participate of the character of both. These are: First, The White John, of which we have now treated, and which, as we have said, is a-kin to the Eagle and the Buzzard. Secondly, The St. Martin, which Brisson and Frisch have called the *Cinereous Lanner*, and Edwards has named the *Blue Falcon*, but which resembles
more

more the White John and the Buzzard than the Falcon or Lanner. Thirdly, The *Sou-buse*, with which species the English seem not to have been well acquainted, having taken another bird for the male, whose female they have named *Ring-tail*, and the pretended male *Hen-barrier*. These are the birds which Brisson has called *Collared Falcons*; but they have more affinity with the Buzzard than the Falcon or the Eagle. These three species, and particularly the last, have been misrepresented, or confounded, or improperly named; for the White John ought not to be ranged among the eagles. The St. Martin is neither a Falcon, as Edwards says; nor a Lanner, as Frisch and Brisson assert; for in its instinct it is different, and in its habits it is opposite to those. It is the same with the *Sou-buse*, which is neither an eagle nor a falcon, since its appetites are entirely dissimilar to those of these two species.

But I am of opinion that we ought to class with the White John, with which we are well acquainted, another bird, known only by the indication of Aldrovandus, under the name of *Laniarius*; and of Schwenckfeld, under that of *Milvus albus*. This bird, which Brisson has also called the *Lanner*, appears to me to be more different from the true Lanner than the St. Martin. Aldrovandus describes two of these birds; the one of which is much larger than the other, being two feet from the point of the bill

bill to the end of the tail, and is of the size of the White John; and appears, from comparing the account of that naturalist, to have the same characters. Nor need we be surprised that Aldrovandus, whose ornithology is on the whole excellent, especially with regard to the European birds, should commit this oversight, since he derives his acquaintance of the White John entirely from Belon *, and has even borrowed his figure. [A]

* *Pygargi secundum genus.* ALDROV:

[A] The White John, *Falco Gallicus*, LINN. The specific character:—"The bill cinereous; the feet naked and yellowish; the body of a dusky grey, and below (in the male) whitish, with tawny spots."

FOREIGN BIRDS, RELATED TO THE EAGLES AND OSPREYS.

I.

THE Bird of the East Indies, which Brisson describes accurately, by the name of the *Pondicherry Eagle*. We shall only observe, that its diminutive size alone ought to exclude it from the Eagles, since it is only half the bulk of the smallest. It resembles the Osprey in the colour of the cere, which is bluish; but its feet are not blue as in that bird, nor yellow as in the Erne. Its bill, of an ash-colour at its origin, and of a pale yellow at the tip, seems to participate of the colours of the Eagle and the Erne: and these differences sufficiently point out this bird as a distinct species. It is probably the most remarkable bird of prey on the Malabar coast, since the natives make an idol of it, to which they pay adoration*; but the beauty of its

* The Malabar Eagle is as beautiful as it is rare. Its head, neck, and the whole of its breast, are covered with exceedingly white feathers, longer than broad, the shaft and edge of which are of a fine jet black. The rest of the body is of shining chestnut, lighter beneath the wings than above; the six first wing-feathers are black at the end; the cere bluish; the tip of the bill yellow, verging on green; the feet yellow; the nails black. It has a piercing look, and is of the bulk of the falcon. It is a sort of divinity worshipped by the people of Malabar. It occurs also in the kingdom of Visapour, and in the territories of the Great Mogul.
—SALERNE.

plumage

plumage, rather than its bulk or strength, merits this honour. It is undoubtedly the most elegant of the rapacious tribe.

[A] This bird is the Pondicherry Eagle of Latham, and the *Falco Ponticerianus* of Linnæus. "The cere sky-coloured; the body chestnut; the head, neck, and breast, white, variegated with dusky lines; the six primary wing-feathers black from their middle to the tips."

II.

The Bird of South America, described by Marcgrave under the name *Urutaurana*, which it receives from the Indians in Brasil, and mentioned by Fernandes by the name of *Ysquanthli*, by which it is called in Mexico. It is what our French travellers have termed the *Oronooco Eagle**, a name which has been adopted by the English. It is somewhat smaller than the Common Eagle, and resembles the Spotted or Rough-footed Eagle by the variety of its plumage. But it has several specific characters: the tips of its

* The Antilles are often visited from the continent by a sort of large bird, which must be ranked at the head of the birds of prey in America. The natives of Tobago have called it the *Oronooco Eagle*, because it is of the bulk and the figure of an Eagle; and because they hold that this bird, which appears only occasionally in the island, frequents the banks of the great river Oronooco. All its plumage is light grey, except the tips of the wings and of the tail, which are edged with yellow. Its eyes are lively and piercing; its wings very long; its flight rapid and speedy, considering the weight of its body. It subsists on other birds, on which it darts with fury, tears them in pieces and swallows them. It attacks the *arras* and paroquets. It has been observed, that it never attacks the bird when on the ground, or sitting on a branch, but waits till it rises, and seizes it on the wing." DU TERTRE, *Hist. Nat. des Antilles*.

wings and tail are edged with a whitish yellow; two black feathers about two inches long, and two other smaller ones, are placed on the crown of the head, and can be raised or depressed at pleasure; the legs are clothed to the feet with white and black feathers, imbricated like scales; the iris is of a bright yellow; the cere and the feet are also yellow, as in the Eagles; but the bill is of a darker, and the nails of a lighter shade:—These differences are sufficient to distinguish this bird from those that have been mentioned in the preceding articles; but to the same species we must, I imagine, refer what Garcilasso calls the *Eagle of Peru*, and which, he says, is smaller than the Eagles in Spain.

Of the same species, or at least of a proximate one, is also the bird found on the west coast of Africa, of which Edwards gives an elegant coloured figure, with an excellent description, under the name of *Crowned Eagle* *.

The

* This bird, says Edwards, is about a third smaller than the largest European Eagles, and appears bolder and more intrepid than the others. The bill with the cere, in which the nostrils are placed, is of a dull brown; it is cleft as far as the eyes, and the edges of the mandibles are yellowish at the insertion; the iris is reddish orange; the fore-part of the head, the orbits, and the throat, are covered with white feathers, sprinkled with small black specks; the hind part of the neck and of the head, the back and the wings, are of a deep brown, verging on black; but the outer edges of the feathers are light brown. The quill-feathers are of a deeper colour than the others in the wings; the sides of the wings near the top, and the ends of some of the coverts of the wings, are white; the tail is of a deep grey, intersected with black bars, and the under part

appears

The distance between Brasil and Africa, which scarcely exceeds four hundred leagues, is not too great a journey to be performed by a bird of an ærial flight ; and therefore it is possible that it may be found on both coasts. The characters are sufficient to decide the identity of the species ; both have a sort of crests which they can depress at pleasure, and both are nearly of the same size ; in both the plumage is variegated, and similarly marked with spots ; the iris is of a bright orange ; the bill, blackish ; the legs covered to the feet with feathers, and marked with black and white ; the toes yellow, and the nails brown or black. In short, the sole difference consists in the disposition of the colours, and in the shades of the plumage, which bears no comparison to the points of conformity. I shall not hesitate therefore to consider the birds of the coasts of Africa as of the same species with that

appears of a dull ash grey ; the breast is of a reddish brown, with large transverse spots on the sides ; the belly is white, and also the under part of the tail, which is marked with black spots ; the thighs and legs are covered to the nails with white feathers prettily marked with round black spots ; the nails are black, and very strong ; the toes are covered with scales of a vivid yellow ; it erects the feathers on its head like a crown, whence it is named. I drew this bird alive at London in 1752 ; its owner assured me that it came from the coast of Africa ; and I am the more willing to believe it, as I have two others of the same species belonging to another person, and which were brought from Guinea. Barbot mentions this bird by the name of the *Crowned Eagle*, in his Description of Guinea : he has given a bad figure of it ; but still we may perceive that the feathers rise on the head in a way very little different from that represented in mine. EDWARDS.

of Brasil; and that the Crowned Eagle of Brasil, the Oronoco Eagle, the Peruvian Eagle, the Crowned Eagle of Guinea, are all the same individual, and have the nearest resemblance to the Spotted or Rough-footed Eagle of Europe.

[A] Linnæus ranges this bird with the Vulture, Gmelin with the Falcon, and both apply the epithet *Harpyia*; Latham calls it the Crested-vulture. It is said to cleave a man's skull with one stroke of its bill, and to be as large as a ram. There is a variety of this in New Grenada, which has a black crest, a white belly, thighs spotted white, the tail long, and variegated with white and black. When young it can be tamed.

III.

The Bird of Brazil, mentioned by Marcgrave by the name of *Urubitinga*, which is probably a different species from the preceding, since it receives another name in the same country. In fact, it differs, first, by its size, being an half smaller; second, by its colour, being of a blackish brown, instead of a fine grey; third, by its want of erect feathers on the head; fourth, because the under part of its legs and feet are naked, as in the Erne, while the preceding is, like the Eagle, feathered to the talons.

IV.

The Bird which we shall call the *Little American Eagle*, which has not been described by any naturalist, and which is found at Cayenne and other parts of South America, is scarcely sixteen or eighteen inches long; and is distinguished at the first glance by a purplish red spot
under

under its neck and throat. It is so small that we should be inclined to class it with the Sparrow-hawks or Falcons ; but the shape of its bill, which is straight at its insertion, and begins its curve at some distance from the origin, has determined us to refer it to the Eagles.

[A] This is the *Red-throated Falcon* of Latham, the *Falco Aquilinus* of Gmelin, and the *Falco Formosus* of Linnæus. Its specific character is, " That its cere, orbits, and feet, are yellowish ; its throat purple ; its body of a cærulean red ; its abdomen flesh-coloured."

V.

The Bird of the Antilles, called *the Fisher* by Father Tertre, and which is probably the same with that mentioned by Catesby by the name of the *Fishing-hawk of Carolina*. It is, says he, of the size of a Gos-hawk, but with a longer body ; its wings, when closed, stretch a little beyond the extremity of the tail, and when expanded measure more than five feet. Its iris is yellow ; its cere blue ; its bill black ; its feet of a pale blue ; its nails black, and almost all of the same length ; the upper part of the body, of the wings, and of the tail, is dark brown ; all the under parts are white ; the feathers on the legs are white, short, and applied close to the skin. " The Fisher," says Father Tertre, " is exactly like the *Mansfeni*, except that " its ventral feathers are white, and those on " the crown of the head black ; its claws are " somewhat smaller. This Fisher is a real pirate ; it molests not the land-animals, or the " birds

“ birds of the air, but directs its attacks upon
 “ the fish alone, which it descries from the top
 “ of a branch, or the point of a cliff, and ob-
 “ serving them at the surface of the water, it
 “ instantly darts upon them, seizes them with
 “ its talons, and retires to devour its prey on a
 “ rock. Though it does not wage war against
 “ the birds, it is pursued by them, and teased
 “ and pecked by them, till it is obliged to shift
 “ its place. The Indian children breed them
 “ when young, and employ them to fish for
 “ pleasure merely, for they never give up their
 “ seizure.” This description of Father Tertre
 is neither so particular nor so full as to warrant
 us to assert that the bird is the same with that
 mentioned by Catesby; we shall therefore state
 it only as a conjecture. But the American bird
 described by Catesby, resembles so nearly the
 European Osprey, that we are inclined to believe
 that it is the same species, or at least only a va-
 riety of it. Its colour is nearly the same; and
 so are also its size, figure, and habits.

[A] This is the *Carolina Osprey* of Latham, and is a variety of
 the *Falco Haliaëtus* of Linnæus. “ Its tail is of a dusky shade;
 “ its crown black, or darkish, variegated with white; the belly
 “ white.”

VI.

The Bird of the Antilles, called by our tra-
 vellers *Mansfeni*, and which they have reckon-
 ed a species of the Rough-footed Eagle (*Nisus*).
 The *Mansfeni*, says Father Tertre, is a strong
 bird of prey, which in its form and plumage
 bears

bears so great a resemblance to the Eagle, that its diminutive size is the only mark of discrimination, for it is scarcely bigger than the Falcon, but its claws are twice as large, and stronger. Though thus well-armed, however, it generally attacks only the defenceless birds; as the thrushes, and the sea-larks; or if more adventurous, the ring-doves and turtles: it feeds also on serpents and small lizards. It perches commonly on the most lofty trees. Its feathers are so strong and so compacted, that unless we fire opposite their position, the shot will not penetrate. Its flesh is rather black, but yet of a pleasant flavour.

The VULTURES*.

THE Eagles have been placed at the head of the birds of prey, not because they are larger or stronger than the Vultures, but because they are more generous, that is, not so meanly cruel; their dispositions are bolder, their conduct more intrepid, and their courage nobler. They are stimulated to their attacks, as much from the glory of conquest as the appetite for plunder: the Vultures, on the contrary, are incited by a low gormandizing instinct; and they seldom attack living animals when they can satiate their voracity on the carcases of the dead ones. The Eagle makes a close fight with his enemies or his victims; he pursues his prey alone and unaided, and singly ravishes the plunder, contends with, and secures his prey. The Vultures, on the contrary, when they expect

* [A] The following is the Generic Character of the Vultures, as given by the best systematic Writers:

The **BILL** straight, blunt at the tip, and the base covered with skin.

The **HEAD** mostly destitute of feathers, and naked skin on the forepart.

The **TONGUE** fleshy, generally cloven.

The **NECK** retractile.

The **FEET** strong, and the nails moderately incurvated.

the

N^o 5



THE VULTURE



the flightest resistance, combine in flocks, like base assassins, and are rather robbers than warriors, birds of carnage than birds of prey. This tribe alone collect in numbers to pour upon the forlorn individual, and tearing the mangled carcase to the bones, they display the bitterness of unprovoked rage. Corruption and infection, instead of driving them to a distance, are to them powerful attractions. Sparrow-hawks, falcons, and even the smallest birds shew more courage; for they seek their prey alone, and almost all of them reject putrid flesh, and spurn a dead carcase. If we compare birds with the quadrupeds, the Vulture seems to unite the strength and cruelty of the tiger with the cowardice and voracity of the jackals, which gather in troops to devour carrion, and dig up carcases; while the Eagle possesses, as we have said, the courage, the generosity, the magnanimity, and the munificence of the lion.

We must therefore separate the Vultures from the Eagles by this difference of instinct; and their external appearance sufficiently marks the distinction. Their eyes are raised, while those of the Eagle are sunk in the orbit; the head is bare, the neck almost naked, or covered with a slight down, or sprinkled with a few straggling hairs; while the Eagle is completely clothed with feathers: the nails of the Eagle are almost semicircular, since they seldom rest upon the ground; while those of the Vulture are shorter and less curved;

curved : their posture is more inclined than that of the Eagle, which is boldly erect, and almost perpendicular upon its feet ; while the Vulture, whose situation is half horizontal, seems to betray the baseness of its character by the inclined position of its body. The Vultures can even be distinguished at a distance ; because they are the only birds of prey that fly in flocks, that is, more than two or three together : besides their flight is slow and laborious ; it is painful for them to rise from the ground ; and they are obliged to make three or four attempts before they can succeed *.

We have included in the genus of Eagles three species, viz. the Golden Eagle, the Ring-tail Eagle, and the Rough-footed Eagle ; and we have added those birds which bear the greatest resemblance to them ; such as the Erne, the Osprey, the Sea-Eagle, and the White John, and the foreign birds related to these : viz. 1. The Beautiful Bird of Malabar. 2. The Bird

* Ray, and Salerne, (who generally copies him word for word,) add another discriminating difference between the Vultures and the Eagles, viz. the shape of the bill, which is not curved immediately at its origin, but continues straight for two inches before it bends. But I must observe, that this character is not precise ; for in the Eagles also, the bill does not immediately begin its arch ; the real difference is, that the straight part is longer in the Vultures than in the Eagles. Other naturalists assign the prominence of the crow as the character of the Vultures ; but this is equivocal, and does not belong to all the species. The Fulvous Vulture, which is one of the principal, so far from having a projection, is remarkable for a concavity under its neck.

of Brazil, Oronoco, Peru, and Guinea, called by the Indians of Brazil *Urutauana*. 3. The Bird called in the same country *Urubitinga*. 4. That which we have called the *Little American Eagle*. 5. The Bird Fisher of the Antilles. 6. The *Mansfeni*, which appears to be a kind of the Rough-footed Eagle:—these constitute in all thirteen species, of which the *Little Eagle of America* has been mentioned by no naturalist. We proceed to make in the same manner the enumeration and reduction of the species of the Vultures, and we shall first treat of a bird which has been ranked among the Eagles by Aristotle, and after him by most authors, though it is really a Vulture.

The ALPINE VULTURE.

Le Percnoptere, Buff.

Vultur Percnopterus, Linn.

Falco Montanus Ægyptiacus, Hasselq.

Vultur Aquilina, Alb.

THIS bird is by no means an Eagle, and is certainly a Vulture; or if we could follow the opinion of the ancients, it forms the last shade between these two kinds of birds, bearing a much closer resemblance to the former than to the latter. Aristotle *, who ranges it among the Eagles, confesses himself that it is rather of the Vulture race, having, he says, all the bad qualities of the Eagles without any of their virtues; suffering itself to be pursued and harassed by the crows; indolent in the chase, and tardy in its motions; always crying and complaining; always famished and searching for carrion. Its wings are also shorter, and its tail longer than the Eagles; its head is of a fine blue, the neck white and naked, or covered merely with a

* Aristotle makes it his fourth species of Eagle under the name of Περκνοπιγος, and afterwards applies the epithet of γπαελος, which Theodore Gaza properly translates *Subaquila*. But others, and particularly Aldrovandus, have conjectured, that instead of γπαελος we ought to read γυπαελος, or *Vulturina aquila*. The fact is, that both these appellations suit this bird,

hoary

hoary down, with a collar of small white hard feathers below the neck like a ruff; the iris is of a reddish yellow; the bill and the cere black, the hook of the bill whitish; the lower part of the feet and legs naked, and of a leaden colour; the nails are black, shorter, and straighter than those of the eagle. It is remarkable for a brown spot shaped like a heart, and edged with a straight white line, and situated on the breast under the ruff. In general, this bird is of an ugly and ill proportioned figure; it has even a disgusting appearance from the continual flux of rheum from its nostrils, and the flow of saliva from two other holes in the bill; its craw is prominent; and when it is upon the ground, it keeps its wings always extended *. In short, it resembles the Eagle only by its size; for it is larger than the Ring-tail Eagle, and approaches the Golden-eagle in the thickness of its body, though the expansion of its wings is less. This species seems to be more rare than those of the other Vultures; it is found however in the Pyrenees, the Alps, and the mountains of Greece. [A]

* This habit of holding the wings extended is not peculiar to this species, but belongs to most of the Vultures, and many other birds of prey.

[A] Buffon seems to range with the Alpine Vulture another, which the systematic writers reckon a different species. It is the Vulturine Eagle of Albin, the *Vultur Barbatus* of Linnæus, the Alpine Vulture of Brisson, the *Pernopterus Gypætos* of Ray, which Buffon mentions in the preceding note. "It is whitish flame-coloured, the body dusky, with a black stripe above and below the eyes."

The FULVOUS VULTURE.

Le Griffon, Buff.*Vultur Fulvus*, Linn.*Vultur Ruber*, Rzac.

THIS bird is still larger than the Alpine Vulture; its wings extend eight feet; its body is thicker and longer than that of the Golden-eagle, the legs being more than a foot in length, and the neck seven inches. It has, like the Alpine Vulture, a ring of white feathers at the origin of the neck; the head is covered with similar feathers, which are collected into a tuft, under which can be perceived the perforations of the ears; the neck is entirely destitute of plumage; the eyes are level with the head, with large eye-lids, which are moveable, and furnished with lashes; the iris is of a beautiful orange colour; the bill long and hooked, black at its origin and termination, and bluish in the middle. The bird is also distinguished by a re-entrant craw, or a large cavity above the stomach, which cavity is covered with hairs, pointing to its centre, and occupying the place of the craw; it is neither prominent nor pendulous, as the Alpine Vulture. The skin, which appears naked on the neck, round the eyes, ears, &c. is of a brown grey, and

and bluish; the largest feathers of the wing are two feet long, and the quill is an inch in circumference; the nails are blackish, but not so large or so crooked as those of the eagles.

I believe, as the Members of the Academy of Sciences have said, that the Fulvous Vulture is really the Great Vulture of Aristotle; but, as they give no reasons in support of their opinion, and as Aristotle seems to form only two species, or rather genera of Vultures, the Little one being whiter than the Great, which differs also in its form*; it would appear that this genus of the Great Vulture includes more than one species. For there is only the Alpine Vulture which he particularly mentions, and as he does not describe any of the other Great Vultures, we may reasonably doubt if the Fulvous Vulture was the same with his Great Vulture. The Common Vulture, which is as large, and perhaps more common than the Fulvous Vulture, might be equally taken for this Great Vulture; so that we may infer that the Members of the Academy of Sciences were rash in affirming as certain, a thing so equivocal and so doubtful, without even mentioning the reason or ground of their assertion; which may be perhaps true, but which must be proved by reflections and comparisons which they have not made. I shall endeavour

* There are two sorts of Vultures, the one smaller and whiter, the other larger and more variegated. ARIST. *Hist. Anim.*

to perform this task; and shall here state the reasons which have convinced me that the Fulvous Vulture is really the Great Vulture of the ancients.

I am then of opinion, that the species of Fulvous Vulture consists of two varieties; the first called by naturalists the *Tawny Vulture* *, and the second the *Golden Vulture* †. The difference between these two birds, of which the first is the Fulvous Vulture, is not so considerable as to constitute two distinct species, for both are of the same size, and nearly of the same colour; in both, the tail is comparatively short, and the wings very long ‡, and by this common character they are distinguished from the other Vultures. This close resemblance § has struck some naturalists even before me, and has induced them to reckon these kindred species. I am even inclined to believe that the bird mentioned by Belon, under the name of *Black Vulture*, is still of the same species with the Golden and Fulvous Vulture; for it is of the same bulk, and its

* *Le Vautour Fauve*. Briss.

† *Vultur Aureus*, Alberti Magni, Gesnerii, Raii, Willoughbei, Klein. *Vultur Bæticus*, sive *Castaneus*, Alb. *Le Vautour Doré*, Briss.

‡ Brisson states the tail of his Golden Vulture as of two feet three inches long, and the largest wing-feather three feet; which would make me suspect that it is a different bird from the Golden Vulture of the ancients, whose tail was shorter compared with its wings.

§ Ray and Willoughby.

back and wings have the same colour as in the Golden Vulture. But if we unite these three varieties into one species, the Fulvous Vulture would be the least unfrequent of all the Great Vultures, and consequently that which Aristotle would principally mention. And what adds probability to the presumption is, that, according to Belon, this Great Vulture is found in Egypt, Arabia, and the islands of the Archipelago, and therefore common in Greece. At any rate I am confident that we may reduce the Great Vultures which appear in Europe into four species:—the Alpine, the Fulvous, the Vulture properly so called, of which we shall treat in the following article, and the Crested Vulture; which differ sufficiently from each other to constitute separate and distinct species.

The Academicians, who dissected two female Fulvous Vultures, have well observed, that the bill is longer, and less incurvated than in the Eagles; and that it is black only at the origin and the tip, the middle being of a bluish grey; that the superior mandible is marked within with a groove on each side; that these receive the cutting edges of the inferior mandible when the bill is closed; that towards the point of the beak there is a small round protuberance, on the sides of which are two little perforations through which the saliva is discharged; that at the base of the beak are placed the two nostrils, each

six lines long and two broad, measuring downwards, which gives an ample space for the external organs of smell; that the tongue is hard and cartilaginous, scooped near the tip, and the edges raised; that these raised edges are still harder than the rest of the tongue, and form a kind of saw, the teeth of which are pointed towards the gullet; that the *œsophagus* dilates below, and forms a large sac; that this sac differs from the crop of fowls only because it is interspersed with the ramifications of a great number of vessels which are very distinct, the membrane being exceedingly white and transparent; that the gizzard is neither so hard nor so thick as in the gallinaceous tribe, and that the fleshy part is not so red as in the gizzards of other birds, but white, like the ventricles; that the intestines and the *cæcum* are small as in other rapacious birds; and that the *ovarium* is of the ordinary shape and size, and the *oviductus* somewhat serpentine, as in the poultry, and does not form a straight regular canal as in most other birds.

If we compare these observations on the interior structure of Vultures with those which the same anatomists of the Academy made on Eagles, we shall easily perceive, that though the Vultures feed upon flesh, as do the Eagles, they have not the same conformation in the organs of digestion; and that, in this respect, they approach much

much nearer to the poultry and other birds that live upon grain; since they have a craw and a stomach which, from the thickness of its lower part, may be regarded as almost a gizzard; so that the Vultures seem destined by their structure, not only to be carnivorous, but granivorous, and even omnivorous.

THE CINEREOUS VULTURE.

Le Vautour, ou Grand Vautour, Buff.

Vultur Cinereus, Linn.

In Italian, *Avoltorio.*

In Spanish, *Buyetre.*

In German, *Geyr.*

In Polish, *Sep.*

In Arabic, *Racham.*

THIS bird is thicker and larger than the Common Eagle, but rather smaller than the Fulvous Vulture, from which it is not difficult to distinguish it:—1. Its neck is covered with a longer and thicker down, of the same colour with that of the feathers on the back; 2. It has a sort of white collar, which rises on both sides of the head, and extends in two branches to the bottom of the neck, bordering on each side a pretty broad black space, under which is a narrow white ring; 3. Its feet are covered with brown feathers, while, in the Fulvous Vulture, they are yellowish or whitish; and, 4. The toes are yellow; whereas in the Fulvous Vulture they are brown, or of an ash colour.

The HARE VULTURE.

Le Vautour à Aigrettes, Buff.

Vultur Cristatus, Linn.

Vultur Leporarius, Ray, Will. and Klein.

THIS Vulture, though smaller than the three first, still deserves to be ranked among the Great Vultures. We cannot describe it better than in the words of Gesner, who is the only naturalist that has seen many of these birds. The Vulture, says he, which the Germans call *Hafengeier*, (*Hare Vulture*,) has a black bill, hooked at the point, ugly eyes, a large and strong body, broad wings, a long and straight tail; a blackish rusty plumage, and yellow feet. When at rest, whether on the ground or perched, it erects the feathers of the head, which then resemble two horns, but which are not perceived when it flies. The expansion of its wings is near six feet; it walks well, advancing fifteen inches at each step; it pursues birds of every kind, and preys upon them; it also catches hares, rabbits, young foxes, and small fawns, nor does it spare even the fish. Its ferocity is such, that it cannot be tamed. Sometimes it seizes its prey in its flight; at other times, it darts upon

its victims from the top of a tree or elevated cliff; but always upon the wing. It makes much noise in its flight. It breeds in the thick and desert forests on the tallest trees. It eats flesh, the entrails of living animals, and even carrion; and though extremely voracious, it can bear the want of food for fourteen days. Two of these birds were caught in Alsace in the month of January 1513; and in the following year, more were found in a nest built on a thick lofty oak, at some distance from the city of Misen.

All the Great Vultures, including the Alpine, the Fulvous, the Cinereous, and the Hare Vulture, have but few young, and breed only once a-year. Aristotle * says, that they generally lay only one or two eggs. They build their nests in places so lofty and inaccessible, that they are seldom discovered; they must be sought for only on the giddy heights of desert mountains †. The Vultures prefer the gloomy haunts during the

* “ It breeds on inaccessible rocks, nor is this bird an inhabitant of many places, for it has only one or two young.” ARIST. *Hist. Anim.*

† In general, Eagles and Vultures which inhabit islands and tracts near the sea, do not build upon trees, but establish their abode among frightful precipices, so that they cannot be seen except from on board of a ship. BELON.—Dapper gives the same relation, and adds, that a strong stake is driven firmly into the earth that covers the summit of the rock, and that a man is let down by a long rope fixed to it, and after putting into a basket the eggs or young which he finds, he is drawn up by his companions. [It is well known that this is practised in the western islands of Scotland and in the Orkneys.]

whole of the fine season ; but when snow and ice begin to cover the summits of the mountains, they descend into the plains, and seek more hospitable abodes. Vultures seem to dread more than Eagles the influence of cold ; they are less common in the north, and it would seem that they have not penetrated Sweden, or the more distant boreal regions ; for Linnæus, in the enumeration which he has given of the Swedish birds, makes no mention of the Vultures : however, in the following article, we shall describe a Vulture which we have received from Norway. But they delight in warm climates ; and in Egypt *, Arabia, the islands of the Archipelago, and other parts of Africa and Asia, they are numerous. In those countries the natives make great use of Vultures' skins ; the leather is almost as thick as that of the kid, and covered with a fine, close, warm down, and they manufacture it into excellent furs †.

It

* When I was in Egypt and in the plains of Arabia Deserta, I observed that the Vultures were frequent and large. BELON.

† The peasants of Crete, and others who inhabit the mountains in different countries in Egypt and in Arabia Deserta, contrive to catch the Vultures several ways ; they slay them, and sell their skins to the furriers. . . . Their skin is about as thick as that of a kid . . . The furriers can separate the large feathers, and leave the down, which is under these, and thus currying the skin, they manufacture valuable *pelisses* ; but in France it is generally used for making stomachers. . . . A person who happens to be at Cairo, and view the merchandizes that are exposed to sale, will find delicate silky fur vestments made of Vultures skins, both black and

white.

It appears to me that the Black Vulture, which Belon says is common in Egypt, is one of the same species with the Cinereous Vulture, and that we ought not to separate them, as some naturalists have done; since Belon, who alone has mentioned them, does not distinguish them, and speaks of the Cinereous and the Black as composing the species of the Great Vulture. In short, it is probable that there are really black ones, such as figured N^o 425, and others that are Cinereous, but which we have not seen. The Black Vulture and the Black Eagle are both of the common species of the Vulture or the Eagle. Aristotle properly remarked, that the genus of the Great Vulture was various; for without including the Alpine, which removes from the Vultures, and ranges with the Eagles, it is really composed of three species; the Fulvous,

white. There are many Vultures in the island of Cyprus; these birds are of the bulk of a swan, very like the Eagle, the wings and back being covered with the same sort of feathers; their neck is full of down, soft as the finest fur, and all the skin so covered with it, that the islanders wear it upon their breast, and opposite to their stomach, to assist digestion. These birds have a tuft of feathers under their neck; their legs are thick and strong. They feed only on carrion, and gorge themselves so much, that one meal is sufficient for fifteen days. . . . And when thus gorged, they cannot easily rise from the ground; they are then readily shot. Sometimes even they are so inactive, that they can be caught by dogs, or killed with sticks or stones. *Description de l'Archipel, par DAPPER.*

the

the Cinereous, and the Hare Vultures. The Little, or Ash-coloured Vulture, on the contrary, forms a single species only in Europe; and thus the philosopher had still reason to say, that the genus of the Great Vulture was more varied.

The ASH-COLOURED VULTURE.

Le Petit Vautour, Buff.

WE have now to consider the Small Vultures, which differ from those of which we have already treated, not only by their diminutive size, but by other peculiar characters. Aristotle reckons only one species, but our nomenclators make three; the Brown Vulture, the Egyptian Vulture, and the White-headed Vulture. The last *, which is the smallest, appears really to be of a different species from that of the two first; for its legs and feet are naked, while in the others they are feathered. This White-headed Vulture is probably the Little White Vulture of the Ancients, which was common in Arabia, Egypt, Greece, Germany, and even as far as Norway, whence it was sent to us. We may remark, that the head, and the under part of the neck, are naked, and of a reddish colour; and that the bird is entirely white, excepting the large feathers of the wings, which are black †.—These characters are full sufficient to discriminate it.

* *Vultur Leucocephalus*, LINN. and BRISS. and the *White Vulture* of RAY. “Its body is sooty, with rufous spots; its head, neck, “and bottom of the tail, white.” It is two feet six inches long.

† Schwenckfeld says, that in Silesia it is called *Grimmer*; that its tongue is pretty broad; that its stomach is thick and wrinkled; and its gall-bladder large.

Of

Of the other species of the Ash-coloured Vulture, I am inclined to reject, or rather to separate, the second, which, from Belon's description, is not a Vulture, but a bird of another genus, which he calls the *Egyptian Sacre*. There remains therefore only the Brown Vulture; with regard to which I shall observe, that I cannot perceive the reasons which led Brisson to refer it to the *Aquila Heteropos* of Gesner. On the contrary, it appears to me, that instead of reckoning the Heteropede Eagle a Vulture, we ought to erase it from the catalogue of birds; for its existence was never proved; no naturalist has seen it; and Gesner, who is the only one that mentions it, and whom all the others have copied, had only a drawing of it, which he caused to be engraved, and from the figure, referred it to the genus of Eagles, and not to that of Vultures; and the epithet of *Heteropede* alludes to the circumstance that one of the legs was blue, and the other whitish brown. But a bird, figured by an unknown person, and named afterwards from an inaccurate drawing, and which the difference of colour of the legs is alone sufficient to render suspicious; a bird which has never been seen by those who mention it; can we consider such as an Eagle or a Vulture? or has it any real existence? It appears then, that to refer it to the Brown Vulture is mere hypothesis.

FOREIGN BIRDS, WHICH RESEMBLE THE VULTURES.

I.

THE bird sent from Africa, and the isle of Malta, under the name of *Brown Vulture*, mentioned in the preceding article, which is a particular species or variety of the Vulture tribe, and which is not found in Europe, must be considered as a native of the climate of Africa, especially of the countries bordering on the Mediterranean.

II.

The bird called by Belon the *Egyptian Sacre**, and which Dr. Shaw mentions by the name of *Achbobba*. This bird appears in numerous flocks on the barren and sandy tracts near the pyramids of Egypt. It is almost always on the ground, and feeds like the Vultures upon every kind of flesh and carrion. “It is,” says Belon, “a dirty and a vulgar bird; and whoever will picture in his imagination a bird with the bulk of the kite, with a bill intermediate between the raven and a bird of prey, hooked at the point, and resembling the ra-

* This is a variety of the Alpine Vulture (*Vultur Pexnopterus*, LINN.) :—“It is of a rufous ash-colour, with dusky spots; its feet naked.”

“ven in the legs and feet and in the manner
 “of walking, will have an idea of this bird,
 “which is common in Egypt, and occurs sel-
 “dom in any other part of the world; though
 “there are some in Syria; and I myself have
 “seen several in Caramania.” This bird varies
 in its colours. Belon conceives that it is the
Hierax, or the *Egyptian Hawk* of Herodo-
 tus, which, like the Ibis, was held in veneration
 by the ancient Egyptians, because both of
 them destroy and eat the serpents, and other nox-
 ious and disgusting reptiles which infest Egypt.
 “Near Cairo,” (says Dr. Shaw, vol. ii. p. 449.)
 “there are several flocks of the *Ach bobba**,
 “the *Pernopterus*, or *Oripelargus*†, which, like
 “the ravens about London, feed upon the car-
 “rion and nastiness, that is thrown without the
 “city. The same bird likewise might be the
 “*Egyptian Hawk*, which Strabo describes (con-
 “trary to the usual qualities of birds of that
 “class) to be of no great fierceness.” Paul
 Lucas also speaks of this bird. “There are
 “in Egypt,” says he, “those Hawks which
 “were honoured, like the Ibis, with religious

* *Ach bobba*, in the Turkish language, signifies *White father*; a name given it partly out of the reverence they have for it, partly from the colour of its plumage: though, in the other respect, it differs little from the *Stork*, being black in several places. It is as big as a large capon, and exactly like the figure which GESNER, lib. iii. *De Avib.* p. 176, hath given us of it.

† Vid. GESN. ut supra. ARIST. *Hist. Anim.* lib. ix. cap. 32. PLIN. lib. x. cap. 3.

“adora-

“ adoration. It is a bird of prey of the bulk
 “ of a raven, the head resembling that of the
 “ Vulture, and the feathers those of the Fal-
 “ con. The priests of this country conceal
 “ great mysteries under the symbol of this bird.
 “ They carve the figure on their obelisks and
 “ the walls of their temples, to represent the
 “ sun. The vivacity of its eyes, which it di-
 “ rects constantly to that great luminary, the
 “ rapidity of its flight, its longevity, &c. seem
 “ proper to mark the nature of the star of the
 “ day,” &c. But this bird, which we see is but
 imperfectly described, is perhaps the same with
 the Carrion Vulture, of which we shall treat in
 Art. IV.

III.

Vultur Papa, Linn.

Vultur Monachus, Klein.

Rex Vulturum, Briss.

Cozcacoauhili, Ray.

Queen of the Auræ, Will.

King of the Vultures, Edw. Alb. & Lath.

The bird of South America which the Euro-
 pean settlers have called the *King of the Vultures*,
 and which is indeed the most beautiful of the
 genus. Brissot describes it fully and accurately
 from a specimen in the Royal cabinet ; and Ed-
 wards, who saw several of the birds in London,
 has given an excellent drawing of it, and a correct
 description. We shall here collect the remarks
 of these authors, and those of their predecessors,
 and add the observations which we have our-
 selves

N^o 6



THE KING OF VULTURES.

B  L

felves made relating to the structure and nature of this bird. It is undoubtedly a Vulture; for its head and neck are naked, which is the most discriminating character of the genus. But it is not large, the extreme length of its body not exceeding two feet two or three inches; it is not thicker than the female turkey; its wings are shorter in proportion to the other Vultures; its bill is thick and short, and begins its curvature only at the point; in some the bill is entirely red; in others only red at the extremity, and black in the middle; the cere is of an orange-colour, broad, and stretching from each side to the crown of the head; in the cere are placed the nostrils, of an oblong shape, and between which the skin projects like a loose jagged comb, falling indifferently on either side, according as the bird moves its head; the eyes are surrounded by a red skin, and the iris has the colour and lustre of pearls; the head and neck are naked, the crown covered with a flesh-coloured skin, which is of a lively red behind, and darker before; below the hind part of the head rises a small tuft of down, from which there extends, on each side under the throat, a wrinkled skin of a brownish colour, and mixed with blue and red near its termination; this skin is marked with small lines of black down. The cheeks, or sides of the head, are covered with a black down; and between the bill and the eyes, behind the insertion of the mandibles, there

there is a brown purple spot ; on the upper part of the arch of the neck there is on each side a small longitudinal line of black down, and the space included between these two lines is of a dirty yellow ; the sides of the arch of the neck are of a red colour, which, as it descends, passes by insensible shades into yellow ; under the naked part of the neck is a collar or ruff composed of pretty long soft feathers of a deep ash-colour ; this collar, which entirely encircles the neck, and descends upon the breast, is so broad that, when the bird contracts itself, it can conceal the neck and part of the head like a cowl ; and this is the reason why some naturalists have given it the name of *Monk*. The feathers on the breast, the belly, the thighs, the legs, and the under surface of the tail, are white, slightly tinged with yellow ; those of the rump, and the upper surface of the tail, vary, being black in some individuals, and in others white : the other feathers of the tail are always black, and so are the great feathers of the wings, which are commonly edged with grey. The colour of the feet and nails is not the same in all these birds ; in some the feet are of a dull white, or yellowish, and the nails blackish ; in others, the feet and nails are reddish ; the nails are very short, and but slightly curved.

This bird is a native of South America, and not of the East Indies, as some authors have

asserted*. The specimen in the king's cabinet was sent from Cayenne. Navarette, speaking of this bird, says, "I saw at Acapulco the King of the *Zopilotes*, or *Vultures*; it is one of the most beautiful of birds," &c. Perry, who dealt in foreign animals at London, informed Mr. Edwards, that this bird comes only from America. Hernandez, in his History of New Spain, describes it in a manner that cannot be misunderstood. Fernandes, Nieremberg, and Laet†, who have all copied the description of Hernandez, agree with him in saying, that this bird is common in Mexico and New Spain; and as, in the extensive search which I have made in works of travellers, I have not discovered

* Albin says, that the one which he figured was brought in a Dutch vessel from the East Indies. And Edwards tells us, that the persons who shewed these birds in London assured him, that they came from the East Indies; notwithstanding, he supposed them to be American.

† "In New Spain there are an incredible number and variety of beautiful birds, among which are the *Cosquauhili*, or *Aura*, as the Mexicans call it. It is of the bigness of an Egyptian hen, and its feathers are black upon every part of the body, except at the neck and round the breast, where they are of a reddish black; the wings are black, and mixed with cinereous, purple, and tawny; the nails are reflected; the bill red at the point; the nostrils open; the eyes black, the pupils tawny; the eye-lids red; the face blood-coloured, and filled with many wrinkles, which it contracts and closes like the turkies, and where there is also a little woolly hair like Negroes; the tail is like that of the eagle, black above, and cinereous below." — "There is another bird of the same kind, which the Mexicans call *Tzopilotl*." DE LAET, *Hist. du Nouv. Monde*.

This second bird, called *Tzopilotl*, must be a Vulture; for the King of the Vultures is also named by the Mexicans *King of the Tzopilotes*.

the slightest indication of it among the birds of Africa and Asia, I think we may conclude, that it is peculiar to the Southern regions of the New Continent, and is not found in the Old. It may be objected, that since the *Ouroutaran*, or Eagle of Brazil, frequents, as I admit, both the African and American shores, the King of the Vultures may enjoy the same extensive range. But this bird is probably unequal to the journey*; for the Eagles in general fly better than the Vultures. It is delicately sensible of cold, and therefore could not pass by the way of the North. I am at least certain, that this bird is confined to its natal region, and haunts the tracts between Brazil and New Spain.

The King Vulture is neither elegant, noble, nor generous; it attacks only weak victims, and feeds upon rats, lizards, serpents, and even the excrements of animals and men. Hence it has a disgusting smell, and not even the savages can eat its flesh.

IV.

The bird called *Ouroua*, or *Aura*, by the Indians of Cayenne, *Urubu* by those of Brazil, *Zopilotl* by those of Mexico, and to which the French settlers in St. Domingo have applied the

* Fernandez however says, that this bird rises to a great height, holding its wings much extended; and that its flight is so vigorous that it withstands the greatest winds. One might suppose that Nieremberg alluded to this circumstance when he called it *Regina Aurarum*; but *Aura* is not derived from the Latin, it is a contraction for *Ouroua*, the Indian name of the Carrion Vulture.

epithet

epithet of *Merchant*, also must be referred to the genus of Vultures; for it has the same instinctive dispositions, and, like them, its bill is hooked, and its head and neck destitute of plumage. It bears also some resemblance to the turkey, which has occasioned its receiving from the Spaniards and Portuguese the name of *Gal-linaço**. It hardly exceeds the size of the wild goose; its head appears small, because it, as well as the neck, is covered only with naked skin, with some straggling black hairs; the skin is rough, and variegated with blue, white, and red; the wings, when closed, extend beyond the tail, which is also of considerable length; the bill is of a yellowish white, and curved only at the point; the cere extends almost to the middle of the bill, and is of a reddish yellow; the iris is orange, and the eyelids white; the feathers are brown or blackish over the whole body, and reflect a varying colour of dull green and purple; the feet are of a livid colour, and the nails black. This bird has nostrils still longer in proportion than the other Vultures †;

* *Vultur Aura*, Linn. *Strunt-vogel* ‖, Kolb. *Turkey-Buzzard*, Catesby and Clayton. *Carriion-Vulture*, Sloane, Damp. Brown, Penn. and Lath.

“ It is of a dusky grey; the wing-feathers black; and the bill white.”

† I have thought it proper to give this short description, because those of other authors do not agree precisely with one I have seen. But as the differences are slight, we may presume that they were owing to the peculiarities of the individual, and consequently their descriptions may be as good as mine.

‖ (i. e. *naſty bird.*)

it is accordingly more cowardly, more filthy, and more voracious than any of them, feeding rather upon carrion and filth than upon game. Its flight, however, is lofty and rapid; but it has not courage to pursue its prey, and only grovels among the dead carcases. If it sometimes summons resolution to make an assault, it collects in numerous flocks, and surprises the helpless solitary animal while drowned in sleep or disarmed by wounds.

The Carrion Vulture is the same bird with that which Kolben describes under the name of the *Eagle of the Cape*. It is therefore found both on the continent of Africa and that of South America; and as it is not observed in the countries of the North, it must have traversed the sea between Brazil and Guinea. Hans Sloane, who saw many of them in America, says, that they fly like kites, and are always lean. Hence it is very possible, from their agility and the rapidity of their course, that they could perform the distant journey across the ocean which separates the two continents. Hernandez informs us, that they feed upon animal carcases, and even human excrements; that they assemble on the lofty trees, whence they descend in flocks to devour carrion; and he adds, their flesh has an offensive smell, ranker than that of the raven. Nieremberg also says, that they fly very high and in numerous flocks; that they pass the night upon trees or elevated rocks, which they leave in the morning, and resort near
the

the inhabited spots ; that their sight is very acute, and that they descry, from a towering height and an immense distance, the carcases on which they prey ; that they maintain a gloomy silence, and never scream or sing, and are heard only by a slight murmur, which they seldom utter ; that they are very common on the plantations in South America, and that their young are white in their infancy, and become brown or blackish as they grow old. Marcgrave, in the description which he gives of this bird, says, that its feet are whitish, its eyes bright, and of a ruby colour ; the tongue grooved, and serrated on the sides. Ximenes assures us, that these birds never fly but in large flocks, and are always very lofty in their course ; that they all alight together upon the same prey, and, without contention, devour it to the bones, and gorge themselves to such a degree, that they are unable to resume their flight. These are the same birds that Acofta mentions by the name of *Poullazes*, “ which
“ have,” says he, “ a wonderful agility and a pier-
“ cing eye, and are very useful for cleaning cities,
“ not suffering the least vestige of carrion or
“ putrid matter to remain ; that they spend the
“ night upon trees and rocks, and resort to the
“ towns in the morning, perch upon the top
“ of the highest buildings, whence they descry
“ and watch for their plunder ; their young
“ have a white plumage, which afterwards
“ changes with age into black.”—“ I believe,” says

Desmarchais, " that these birds called *Gallinacher*
 " by the Portuguese, and *Marchands* by the
 " French settlers in St. Domingo, are a kind of
 " turkey *, which, instead of living upon grain,
 " fruits, and herbs, like the others, are accus-
 " tomed to feed upon dead animals and carrion;
 " they follow the hunters, especially those whose
 " object is only to procure the skins; these
 " people neglect the carcases, which would rot
 " on the spot, and infect the air, but for the
 " assistance of these birds, which no sooner per-
 " ceive a flayed body, than they call to each other,
 " and pour upon it like Vultures, and in an in-
 " stant devour the flesh, and leave the bones as
 " clean as if they had been scraped with a knife.
 " The Spaniards, who are settled upon the large
 " islands, and upon the continent, as well as the
 " Portuguese, who inhabit those tracts where
 " they traffic in hides, receive great benefit
 " from these birds, by their devouring the
 " dead bodies and preventing infection; and
 " therefore they impose a fine upon those who
 " destroy them. This protection has extremely
 " multiplied this disgusting kind of turkey. It
 " is found in many parts of Guiana as well as
 " in Brazil, New Spain, and the large islands.
 " It has the smell of carrion, which nothing can

* Though this bird resembles the turkey by its head, neck, and the bulk of the body, it is by no means of that genus, but of that of the Vulture; to which it is analogous by its instincts, habits, and, besides, by its hooked bill and its talons.

" remove;

“ remove ; the rump has been torn from it at
“ the instant of its being killed, and the entrails
“ extracted, but all to no effect ; for the flesh,
“ which is hard, tough, and stringy, still re-
“ tained an insupportable odour. “ These birds,”
says Kolben, “ feed upon dead animals : I my-
“ self have often seen the skeletons of cows,
“ oxen, and wild beasts, which they had de-
“ voured. I call these vestiges skeletons, and
“ not without reason ; since the birds detach
“ with such dexterity the flesh from the bones
“ and the skin, that what is left is a perfect
“ skeleton, covered still with the skin, without
“ the least derangement of the parts. One could
“ hardly perceive that the carcase is hollow till
“ he is near it.—They perform it in this way :
“ They first make an opening in the belly of
“ the animal and tear out the entrails, which
“ they eat ; they then enter the hollow and se-
“ parate the flesh. The Dutch of the Cape call
“ these Eagles *Stront-vogels*, or *Stront-jagers* ; that
“ is, *dung birds*. It often happens that an ox,
“ after being unyoked from the plough, and
“ allowed to return alone to its stall, lies down
“ by the way to rest itself ; and if these Eagles
“ observe its unguarded posture, they infallibly
“ fall upon it and devour it.—When they want
“ to attack a cow or an ox, they collect to the
“ number of a hundred or more, and pour at
“ once upon the unfortunate victim. They
“ have so quick a sight, that they can discern

“ their prey at an amazing height, and when
“ it would escape the most acute eye ; and, when
“ they perceive the favourable moment, they
“ descend directly upon the animal, which they
“ watch. These Eagles are rather larger
“ than wild geese, their feathers are partly
“ black, partly light grey, but the black pre-
“ dominates ; their beak is thick, hooked, and
“ pointed ; their claws large and sharp.” — “ This
“ bird,” says Catesby, “ weighs four pounds
“ and a half ; the head and part of the neck
“ is red, bald and fleshy as in the turkey, beset
“ with straggling bristles ; the bill is two inches
“ and an half long, partly covered with flesh,
“ and its tip, which is white, is hooked like
“ that of the falcon, but it has no whiskers at
“ the sides of the upper mandible ; the nostrils
“ are large and open, placed before at a remark-
“ able distance from the eyes ; the plumage
“ through the whole of the body has a mixture
“ of deep purple and green ; its legs short and
“ flesh-coloured, its toes long as in the domestic
“ cocks, and its nails, which are black, are not
“ so much hooked as those of falcons. They
“ feed on carrion, and fly continually on the
“ search ; they continue long on the wing, and
“ rise and descend so smoothly, that the motion
“ of their pinions cannot be perceived. A dead
“ carcass attracts numbers of them ; and it is
“ amusing to see their disputes with each other.
“ while

“ while eating *. An Eagle often presides at
“ the banquet, and does not suffer them to
“ approach till he has satisfied his appetite.
“ These birds have a most acute scent, and smell
“ carrion at a vast distance, to which they re-
“ sort from all quarters, wheeling about and
“ making a gradual descent till they reach the
“ ground. It is generally supposed that they
“ eat no living prey; but I know that some of
“ them have killed lambs, and that they common-
“ ly feed on snakes. They usually roost in num-
“ bers together on old pines and cypresses,
“ where they continue several hours in the
“ morning, their wings being displayed †. They
“ are very tame, and, while at their meals, will
“ suffer a very near approach.”

I have thought proper to produce, at considerable length, all the facts which tend to throw light on the history of this bird; for it is in distant countries, and especially in desert regions, that we are to contemplate Nature in her primæval form. Our quadrupeds, and even our birds, perpetually driven from their haunts, lose in part their original instincts, and acquire

* This fact is directly contrary to what Nieremberg, Marcgrave, and Desmarchais asserts, with regard to the silence and concord that prevail in their meals.

† This circumstance still farther shews, that this bird belongs to the Vultures; for when these sit they always keep their wings spread. Mr. Pennant supposes that they expose their plumage to the air, with the view of getting rid of the rank fœtor.

habits which have a reference to the state of civil society. We must study the dispositions of the Vultures in the solitary tracts in America, to discover what would be the manners of our own, if they were not molested in their retreats, checked in their multiplication, and disturbed in their operations by our crowded population.—These are their primitive characters.—In every part of the globe, they are voracious, slothful, offensive, and hateful; and, like the wolves, are as noxious during their life, as useless after their death. [A]

[A] We may add from Mr. Pennant, that the Carrion Vultures are not found in the northern regions of the Ancient Continent; but in the New they are common through its whole extent, from Nova Scotia to Terra del Fuego, and also in the West India islands, though they are said to be smaller there than on the main-land. They swarm in the torrid zone; and about Carthagera especially, they haunt inhabited places, sit in numbers on the roofs of houses, or walk with sluggish pace along the streets. They watch the female alligator as she hides her eggs in the sand, and on her retreat, they hurry to the spot, and eagerly lay bare the depository, and devour the whole contents.

The CONDUR.

Le Condor, Buff.*Vultur Gryphus*, Linn.*Avis ingens Chilensis* *, *Cuntur*, Ray.

IF the power of flying constitute the essential character of birds, the Condur Vulture must be considered the largest of all. The Ostrich, the Galeated Cassowary, and the Hooded Dodo, whose wings and feathers are not calculated for flying, and who for this reason cannot quit the ground, ought not to be compared with it; they are (if I may be allowed the expression) imperfect birds, a sort of terrestrial bipeds, which form an intermediate shade between the birds and quadrupeds on the one hand; while the rouffette and rougette and the bats form a similar shade, on the other, between the quadrupeds and the birds. The Condur possesses, even in a higher degree than the Eagle, all the qualities, all the endowments which Nature has bestowed on the most perfect species of this class of beings. Its wings extend eighteen feet; the body, the bill, and the talons are proportionally large and strong; its courage is equal to its strength, &c.

* The Indians who live near the river Amazons, call it *Ouyrad-Ovassou*; that is, the Great Ouara or Aura.

—We cannot give a better idea of its form, and the proportions of the several parts of its body, than by an extract from Father Feuillée, the only naturalist and traveller who has given a full description of this bird :—“ The Condur is “ a bird of prey which haunts the valley of “ of Ylo in Peru.—I discovered one that was “ perched upon a great rock: I approached it “ within musket shot, and fired, but, as my “ piece was only loaded with swan-shot, the “ lead could not pierce its feathers. I perceived “ however, from its motions, that it was wound- “ ed; for it rose heavily, and could with dif- “ ficulty reach another great rock five hundred “ paces distant upon the sea-shore. I therefore “ charged my piece with a bullet, and hit the “ bird under the throat. I then saw that I had “ succeeded, and I ran to secure the victim; “ but it struggled obstinately with death; and “ resting upon its back, it repelled my attempts “ with its extended talons. I was at a loss “ on what side to lay hold of it; and I believe “ that if it had not been mortally wounded, I “ should have found great difficulty in securing “ it. At last I dragged it down from the top “ of the rock, and, with the assistance of a “ sailor, I carried it to my tent, to figure it, and “ make a coloured drawing.

“ The wings of the Condur, which I measured “ very exactly, extended eleven feet four inches “ from the one extremity to the other, and the “ quill-

“ quill-feathers, which were of a fine shining
“ black, were two feet two inches long; the thick-
“ nefs of the bill was proportioned to that of the
“ body, and its length was three inches and seven
“ lines, the upper part pointed, hooked, and white
“ at the end, and all the reft black; a fmall fhort
“ down of a tawny colour covered the whole head;
“ the eyes were black, and encircled with a brown-
“ ifh-red ring; the under-furface of its wings,
“ and the lower part of its belly as far as the tail,
“ were of a light brown; the upper furface of
“ the fame colour, but darker; the thighs were
“ covered as low as the knee with brown feathers;
“ the *os femoris* was ten inches and a line in
“ length, the tibia five inches and two lines; the
“ foot was compofed of three anterior pounces and
“ one posterior, the laft being an inch and half
“ long, with a fingle articulation, terminated by a
“ black nail nine lines in length; the middle or
“ great anterior pounce was five inches eight
“ lines, with three articulations, and the nail
“ which terminated it was an inch and nine lines,
“ and was black like the others; the inner pounce
“ was three inches two lines, with two articula-
“ tions, and terminated by a nail of the fame fize
“ with that of the great pounce; the outer pounce
“ was three inches long, with four articulations
“ and a nail of an inch; the tibia was covered
“ with fmall black fcales, and fo were the pounces,
“ only thefe were larger.

“ Thefe animals commonly fettle upon the
“ moun-

“ mountains, where they procure their subsistence; they resort to the shore only in the rainy seasons; and feeling the approach of cold, they seek for shelter and warmth in the plains. These summits, though situated under the torrid zone, are yet exposed to a chill air; they are covered almost the whole year with snow, but particularly in winter, which had set in on the 21st of this month.

“ The scanty subsistence which these animals can pick up upon the margin of the sea, except when storms cast ashore large fish, obliges them to make but a short stay; they appear on the beach generally about evening, and there pass the night, and return to their proper haunts in the morning.”

Frezier, in his Voyage to the South Sea, speaks of this bird in the following terms:—

“ One day we killed a bird of prey, called *Condur*, whose wings measured nine feet; it had a brown comb, but not jagged like that of the cock; it had in the forepart a red gizzard, naked as in the turkey; it is commonly bulky, and can with ease carry off a lamb. Garcilasso says, that he found some in Peru whose wings extended sixteen feet.”

In fact, it appears that these two Condurs, mentioned by Feuillée and Frezier, were young and uncommonly small for the species; and accordingly all the other travellers represent them

them of a greater size *. Fathers Abbeville and Laët affirm, that the Condur is twice as large as the eagle, and so strong that it can pounce and devour a whole sheep; that it spares not even stags, and easily overthrows a man. There are some, say Acosta and Garcilasso †, whose wings extend fifteen or sixteen feet; their beak is so firm, that they pierce a cow's hide, and two of them are able to kill the animal, and eat the carcass. Sometimes they even dare to attack men; but fortunately they are rare, for if they were numerous, they would extirpate the cattle. Desmarchais relates that these birds measure eighteen feet across the wings; that their talons are thick, strong, and very hooked; that the American Indians affirm, that they seize and transport a hind or a young cow as they would do a rabbit; that they are of the size of a sheep,

* On the coast of Chili (says Strong), not far from the island of Mocha, we met with this bird (the Condur) sitting on a lofty cliff nigh the shore. We shot it, and the sailors were astonished at its prodigious bulk, for its wings measured from tip to tip thirteen feet. The Spaniards settled in that country told us, that they dreaded lest these birds should carry off and devour their children, *RAY, Synop. Av.*

† Those who have measured the Condurs have found that their wings extend sixteen feet. Their bill is so strong and so hard that they easily pierce an ox's hide. Two of these birds attack a cow or a bull, and succeed. They can pounce children of ten or twelve years old, and prey upon them. Their plumage is like that of magpies; they have a comb on the forehead, which is different from that of cocks, not being jagged; their flight is terrible, and when they alight on the ground one is stunned with the noise of the rustle. *Hist. Incas.*

and

and that their flesh is coriaceous, and smells like carrion; that their sight is sharp, their aspect stern and cruel; that they seldom frequent the forests, where they have scarcely room to wield their enormous wings; but that they haunt the sea-shore, the sides of rivers, and the savannahs, or natural meadows*.

Ray, and almost all the naturalists after him, have considered the Condur † as a kind of Vulture, because its head and neck are destitute of plumage. But there is still reason to doubt this conclusion; for it appears that its dispositions have a greater resemblance to those of the Eagles. It is, say the travellers, bold and intrepid; it ventures alone to attack a man, and can, with little difficulty, kill a child ten or twelve years old ‡. It stops a whole flock of sheep,

* “Our sailors,” says Spilberg, “caught in the island of Loubet, on the coast of Peru, two birds of an uncommon size, having bills, wings and talons like the Eagles, a neck like the sheep, and a head like the cock. Indeed their figure was as extraordinary as their bulk.”

“There were,” says de Solis, “in the *menagerie* of the Emperor of Mexico, birds of such an astonishing size and ferocity, that they seemed to be monsters. . . . Their voracity was prodigious; and an author mentions, that one of them devoured a sheep at each meal.”

† To this genus the large bird of Chili called *Condur* seems to belong; I have been able, from this imperfect description, to come to this conclusion, since I cannot doubt that it is a Vulture, being named *Aura*. On account of its naked head, it was at first supposed by the sailors to be a turkey-cock.—From a similar inadvertency our first American colonists imagined the Carrion Vulture to be a turkey.

‡ “It has often happened that one of these birds has killed and eaten children of ten or twelve years old.” SLOANE, *Phil. Transf.*
“The

sheep, and, at its leisure, selects its prize. It carries off roebucks, kills hinds and cows; and also catches large fish. It therefore lives, like the eagle, upon the ravages which it commits; it feeds upon fresh prey, and not upon dead carcases.—These are rather the habits of the eagle than of the vulture.

It appears to me that this bird, which is still but little known because it is very rare, is not confined to South America; I am confident that it is found both in Africa and Asia, and perhaps even in Europe. Garcilasso properly remarks, that the Condur of Peru and of Chili, is the same bird with the *Ruch* or *Roc*, of the eastern nations, so famous in the Arabian Tales, and which is mentioned by Marco Paolo; and, with equal propriety, he quotes Marco Paolo along with the Arabian Tales; for, in the account of the Venetian, there is almost as much exaggeration. “In the island of Madagascar,” says he, “there is a wonderful kind of bird, which they call *Roc*, which bears a

“The famous bird called the *Cuntur* in Peru, which I have seen in several parts among the mountains of Quito, is also found, if I am rightly informed, in the low-lands near the river Maragnon. I have seen it hovering over a flock of sheep; it is probable that the presence of the shepherd prevented its attack. It is an opinion universally entertained, that this bird can bear off a roebuck, and sometimes preys on a child. It is said that the Indians decoy it, by presenting the figure of a child formed of a very viscous clay, upon which he darts with rapid flight, and impresses his claws so deeply, that he cannot disentangle himself.” *Voyage de la Riviere des Amazons, par M. de la Condamine.*

“ resemblance to the eagle, but is incompa-
 “ rably bigger the wing-feathers being
 “ six fathoms long, and the body large in pro-
 “ portion. Its strength is so astonishing, that,
 “ singly and unassisted, it seizes an elephant,
 “ hurries the ponderous animal into the air,
 “ drops it, and kills it by the fall, and after-
 “ wards feeds upon the carcase.” It is unne-
 cessary to make any critical reflections ; it is
 sufficient to oppose facts of greater veracity,
 such as we have already related, and what we
 shall still produce. It appears to me that the
 bird mentioned almost as large as an Ostrich in
 the History of the Voyage to the Southern
 continent *, which the President de Brosse has
 digested with as much judgment as care, must
 be the same with the Condur of the Ameri-
 cans, and the Roc of the Orientals. Moreover,
 I am of opinion, that the bird of prey found in
 the vicinity of Tarnasar †, a city in the East
 Indies,

* “ From the boughs of a tree which produces the fruits called
Monkey's bread, were suspended nests that resembled large oval ham-
 pers, open below, and loosely interwoven with branches. I had not
 the satisfaction to see the bird to which these belonged ; but the
 people in the neighbourhood assured me, that its figure was much
 like that of the kind of eagle which they call *Niaun*. To judge of
 the bulk of these birds from that of their nests, it cannot be much
inferior to that of the Ostrich.” *Hist. des Navigations aux Terres*
Australes.

† “ In the vicinity of Tarnasar, a city of India, are many kinds
 of birds, subsisting chiefly on prey, and much larger than the eagles ;
 for the hilts of swords are formed of the upper part of the bill ; that
 part of the bill is fulvous, varied with cœrulean ; but the colour of
 the

Indies, which is much larger than the eagle, and whose bill serves for the hilt of a sword, is likewise the Condur; as well as the Vulture of Senegal*, which attacks and carries off children; and that the savage bird of Lapland†, as large and thick as a sheep, mentioned by Regnard and Martiniere, and of whose nest Olaus Magnus gives an engraving, is probably the same. But not to draw our comparisons from such distant countries, to what other species must we refer the *Laemmer Geyer* (*Lamb-Vulture*) of the Germans‡? This Vulture, the plunderer of lambs and sheep, which has been often seen at different

the bird is black, with a few straggling feathers of purple." *Lud. Patricius apud Gesnerum.*

* There are in Senegal Vultures as large as eagles, which devour young children when they find them alone. *Voyage de la Maire.*

† There is found also in Russian Lapland a wild bird of a pearl grey, as thick and large as a sheep, having a head like a cat, and eyes glaring and red; the bill of an eagle, and the feet and talons of the same. *Voyage des Pays Septentrionaux, par de la Martinere.*

There are scarcely fewer birds than quadrupeds in Lapland; the eagles are to be met with in abundance; some are so prodigiously large that, as I have already said, they seize the young fawns of the rein-deer, and carry them to their nests, which they construct on the summit of the highest trees; and for this reason some person is always set to watch these. *Regnard, Voyage de Lappon.*

‡ It may be proper to observe, that the *Laëmmergeyer* has been since discovered to be quite a different bird from the Condur. It is the *Vulture-Eagle* of Albin, the *Vultur Barbatus* of Linnæus, and the *Falco Barbatus* of Gmelin: It is the same with the *Avoltoio Barbato* of the Italians, the *Alpine Vulture* of Briffon, and the *Pernopterus Gypaëtos* of Ray and Willoughby. "It is whitish flame-coloured; the back dusky, with a black stripe above and

different times in Germany and Switzerland, and which is much larger than the eagle, must be the Condur. Gesner relates, from the testimony of an author of credit (George Fabricius) the following facts. Some peasants between Miesen and Brisa, cities in Germany, losing every day some of their cattle, which they in vain sought for in the forests, observed a very large nest resting on three oaks, constructed with sticks and branches of trees, and as wide as would cover a cart. They found in this nest three young birds already so large, that their wings extended seven ells; their legs were as thick as those of a lion, the nails of the size of a man's fingers; and in the nest, were several skins of calves and sheep. Valmont de Bomare and Salerne have thought, as well as myself, that the *Laemmer Geyer* of the Alps must be the Condur of Peru. Its spread wings, says Bomare, extend fourteen feet; it commits dread-

"below the eyes." It inhabits in small flocks the Alpine tracts of Switzerland, and of the country of the Grisons. It nestles in the holes of inaccessible rocks. It resembles the Vulture in its exterior appearance, in its gregarious habits, and in its fondness for carrion. It is like the eagle in its head and neck, and in its courage.

To the same species belong two varieties which are found in the mountains of Persia. The first is the *Golden Vulture* of Brisson and Latham, and the *Chestnut Vulture* of Willoughby. "It is rufous; the back black; the head, and the under part of the neck, of a tawny white; the wings and tail-feathers dusky."—The second is the *Falco Magnus* of Gmelin. "Its cere is cœrulean; its feet, and the under part of its body, are chestnut mixed with white; its tail cinereous."

ful havoc among the goats, the sheep, the chamois, the hares and the marmots. Salerne also relates a decisive fact on this subject, which deserves to be quoted at length. "In 1719, M. Déradin, father-in-law to M. de Lac, shot at his castle of Mylourdin, in the parish of Saint-Martin d'Abat, a bird which weighed eighteen pounds, and whose wings measured eighteen feet. It flew for some days about a pond, and was pierced by two balls under the wing. The upper part of its body was mottled with black, grey, and white; the top of its belly red as scarlet; and its feathers were crisped. They ate of it both at the castle of Mylourdin and at Châteauneuf-sur-Loire; the flesh was found tough and fibrous, and smelt of the marsh. I saw and examined one of the small feathers of the wings, which was larger than the quill-feather of the swan. This singular bird seemed to be the Condur." In short, the enormous size must be considered as a decisive character; and though the *Laemmer Geyer* of the Alps differs from the Condur of Peru by the tints of its plumage, we cannot but refer them to the same species, at least till we obtain a more accurate description of both.

It appears from the testimonies of travellers, that the Condur of Peru has a plumage marked with black and white, like that of the magpie; and therefore the large bird killed in France at the castle of Mylourdin resembles it both in size

and colour. We may therefore conclude, with great probability, that these exalted sort of birds, though very rare, are scattered over both continents; and feeding upon every kind of prey, and dreading nothing but the human race, avoid the habitations of men, and confine their haunts to extensive deserts, or lofty mountains.

B  L

N^o 7



THE KITE

The KITE and the BUZZARDS.

THESE ignoble, filthy, and slothful birds ought to follow the vultures, which they resemble by their dispositions and habits. The vultures, though destitute of every generous quality, claim, by their size and strength, a principal rank among the feathered race. The Kites and Buzzards, inferior to these in force and magnitude, far exceed them in numbers. They are more troublesome; they oftener visit inhabited spots, and settle nearer the residence of men; they build their nests in places more accessible; they seldom remain in deserts, but prefer the fertile hills and dales to the barren mountains. In such situations, Nature, assisted by the forming industry of man, teems with vegetable and animal productions, and presents an easy and abundant harvest to the voracious tribe. The Kites and Buzzards are neither bold nor timid; they have a kind of stupid ferocity, which gives them an air of cool intrepidity, and seems to remove the sense of danger. It is easier to approach and to kill them than the eagles or vultures; when detained in captivity, they are less capable of instruction; and they have always

been proscribed and erased from the catalogue of noble birds, and banished from the school of falconry. In all ages, it has been common to compare a gross shameless man to a Kite, and a disgusting stupid woman to a Buzzard.

Though these birds resemble each other in their instinct, their size *, and the form of their bill and other characters, the Kite is however easily distinguished, not only from the Buzzards, but from all other birds of prey, by a single prominent feature: its tail is forked; the middle feathers being shorter than the rest, leave a blank which can be perceived at a distance, and which has improperly given occasion to the name of *Forked-tail-Eagle*. Its wings are also proportionally longer than those of the Buzzard, and it flies with far greater ease. It spends its life in the region of the clouds; it seldom courts repose, and every day it traverses an immense range. But it performs these continual circling journies, not with the view to procure its prey; it only indulges its natural, its favourite exercise. One cannot but admire the ease and the elegance of its motion; its long narrow wings seem perfectly fixed; the tail alone appears to direct all its evolutions, and it quivers incessantly; it rises without making an exertion, and descends as if it

* The Royal Kite is in size and figure like the Buzzard. — In the former, the legs are saffron colour, and shorter; and in the Buzzard, the part below the knee is covered with pendent ferruginous feathers. SCHWENCKFELD.

were gliding along an inclined plane ; it accelerates its course, it retards it ; it stops, hovers suspended in the same place for whole hours, nor is observed even in the least to quiver its expanded wings.

In our climate, there is only one species of Kite, which the French call the *Royal Kite* *, because it was formerly an amusement for princes to hunt this cowardly bird with the falcon or the sparrow-hawk. It is indeed entertaining to see it, though possessed of all that ought to inspire courage, and deficient neither in weapons, strength, nor agility, decline the combat, and fly before a sparrow-hawk smaller than itself ; it constantly circles, and rises, as it were, to conceal itself in the clouds, and when overtaken, it suffers itself to be beaten without resistance, and brought to the ground, not wounded, but vanquished, and rather overcome with fear, than subdued by the force of its antagonist.

* *Le Milan Royal*, Buff. *Falco Fulvus*, Linn. *The Kite or Glead*, Will.

In German it is named *Woike*, *Weisser Milan*, (*White Kite*,) and *Hungeyer* (*Hen-Vulture*) : in Dutch, *Wowe* : in Polish, *Kania* : in Swedish, *Glada* : in Spanish, *Milano* : in Italian, *Milvio*, *Nibbio*, *Poyana*. The antient Greeks called it *ἰκν*, a word which is also employed to denote a sort of hare. (Buffon supposes, probably from an oversight, the term to be *ἰκν*, which signifies a polecat, and imagines that it was applied to the Kites, because poultry is the common prey of both.) The Romans named it *Milvius*, i. e. *Mellis Avis*, indolent bird. The Swedish, *Glada*, and the Old English name *Gleade*, refer to its gliding motion.

Though

Though the Kite scarcely weighs two pounds and an half, and measures only sixteen or seventeen inches from the point of the bill to the toes, its wings extend near five feet; the cere, the iris, and the feet are yellow; the bill is of a horn colour, blackish towards the point, and the nails are black; its sight is as keen as its flight is rapid; sometimes it soars so high in the air, as to be beyond the reach of our view, and yet at this immense distance, it distinctly perceives its food, and descends upon whatever it can devour or ravage without resistance; its attacks are confined to the smallest animals and the feeblest birds; it is particularly fond of young chickens, but the fury of the mother is alone sufficient to repel the robber. "Kites," one of my friends writes me*, "are exceedingly cowardly animals. I have seen two of them chase a bird of prey together to share the spoils, and yet not succeed. The ravens insult them, and drive them away. They are as voracious as they are dastardly; I have seen them pick up, on the surface of the water, small dead and half rotten fish; I have observed some carry a large viper in their claws; others feed upon the carcases of horses and oxen. I have seen some alight upon tripes, which women were washing by the side of a rivulet, and snatch it almost in their presence.

* Mr. Hebert, to whom I am indebted for several important facts with regard to the history of Birds.

" I once offered a young Kite, which the children were breeding in the house where I lived, a pretty large young pigeon, and it swallowed it entire with the feathers."

This sort of Kite is common in France, especially in the provinces of Franche-comté, Dauphiné, Bugey, Auvergne, and in all the others which are in the vicinity of mountains. It is not a bird of passage, for it constructs its nest in these countries, and breeds in the hollow of rocks. It appears even that they nestle in England, and remain there during the whole year*. The female lays two or three eggs, which are whitish, with pale yellow spots, and like those of all the carnivorous birds, are rounder than hen's eggs. Some authors have said that they build their nests in the forests, upon old oaks or firs. Without venturing absolutely to deny the fact, we can affirm that they are commonly found in the holes of rocks.

This species seems to be scattered through the whole extent of the ancient continent, from Sweden to Senegal†; but I am uncertain if it
be

* Some have supposed these to be birds of passage; but in England they certainly continue the whole year. *British Zoology.*

† It appears that the Kite is found in the north; since Linnæus includes it in his catalogue of the Swedish birds, describing it as *a falcon with a yellow cere, forked tail, ferruginous body, and whitish coloured head.* Travellers also tell us, that it occurs in the hottest parts of Africa. In Guinea, says Bosman, the Kites not only plunder hens, from which circumstance they have their name, but
whatever

be also found in the new ; for no mention is made of it in the accounts that are given of America. There is indeed a bird, which is said to be a native of Peru, and appears in Carolina only in summer, which in some respects resembles the Kite, and has like it a forked tail. Catesby gives a description and figure of it under the name of *Swallow-tailed-Falcon*, and Brisson terms it the *Carolina Kite* [A]. I am inclined to believe that it is a species related to that of our Kite, and occupies its place in the new continent.

But there is another species still nearer related, and which appears in our latitudes as a bird of passage ; it is called the *Black Kite*. Aristotle distinguishes this from the preceding, which he

whatever they can discover and seize, whether game or fish ; and their audacity is so great, that they snatch the fish from the negro girls, which they carry to market, or call in the streets. *Voyage to Guinea.*

Near the desert bordering Senegal, says another traveller, there is a sort of Kite.—Every thing suits its greedy appetite ; it is not intimidated by fire-arms. Flesh, whether raw or dressed, tempts it so strongly, that it seizes the morsels as the sailors convey them to their mouth. *Hist. Gen. des Voyages par M. Abbé Prevost.*

[A] The *Swallow-tailed-Falcon* is the *Falco Furcatus* of Linnæus, the *Great Peruvian Swallow* of Feuillé, and the *forked-tailed Peruvian Falcon* of Klein. The specific character :—“ The cere is “ dull coloured, the feet yellowish, the body dusky above and “ whitish below, its tail very long and forked.” It inhabits Carolina and Peru, lives upon insects and serpents, and is migratory. It is rather smaller than the Kite, but of the same length. The *irides* are red, the head and neck snowy, the back dusky or black, shining with purple or green.

names simply *Kite*, and gives it the epithet of *Ætolian*, because, in his time, it was probably most common in *Ætolia* *. Belon also mentions these two Kites; but he is mistaken when he says that the first, which is the Royal Kite, is blacker than the second, which he notwithstanding calls *Black Kite*. Perhaps it is an error of the press, for it is certain that the Royal Eagle is not so black as the other. No naturalist, ancient or modern, has attended to the most obvious distinction between these two birds, which is founded in the difference of the figure of their tails. But in size, their shape and their instinctive habits, they bear a close resemblance, and must therefore be considered as kindred species †.

Aldrovandus says, that the Hollanders call this Kite *Kukenduff*, and that though smaller than the Royal Eagle, it is stronger and more agile. Schwenckfeld affirms on the contrary, that it is weaker and more slothful, and that it preys only upon field-mice, grasshoppers, and upon small birds, as they rise from their nests.

* Kites have for the most part two eggs, sometimes three; and they hatch as many young. But what is called the *Ætolian* lays sometimes four. *Arist. Hist. An.*

† The *Falco Ater* of Gmelin, the *Schwartzer Milan*, and the *Brauner Mäld* Geyer of the Germans, and the *Black Kite* of Sibbald and Latham. "Its cere and feet are yellow, its body dusky—black above, whitish on the head and the under part of the body, its tail forked." It is smaller than the common kite, its tail slightly forked, its legs slender; its egg is ferruginous, with dusky and black spots.

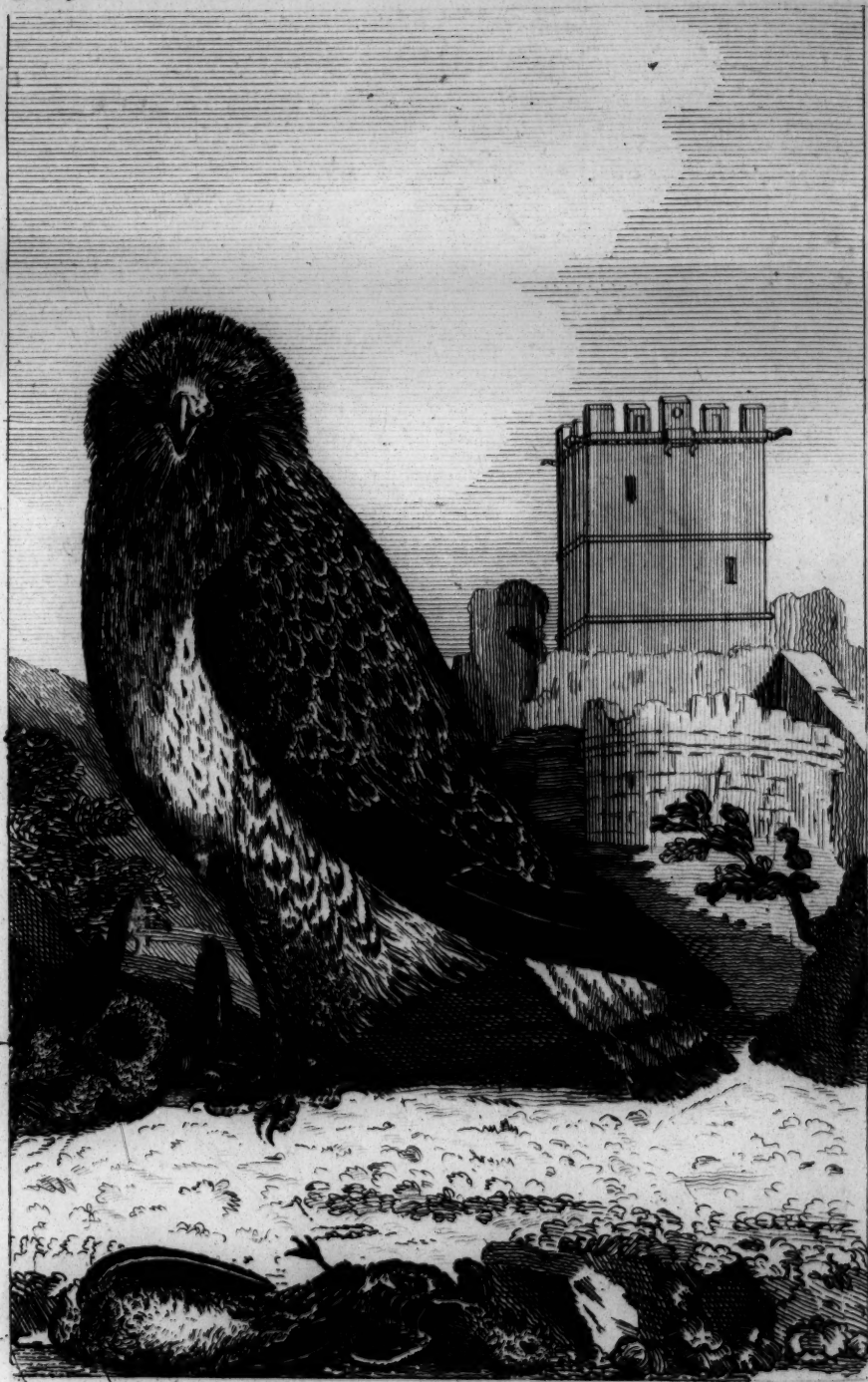
He

He adds, that this species is very common in Germany; this may be true, but we are certain that in France and England it is much less frequent than the Royal Kite. The one is a native, and resides with us the whole year; the other is a bird of passage, which quits our climate in autumn, and migrates to warmer regions. Belon was an eye-witness of their passage from Europe to Egypt;—before the approach of winter, they traverse the Black-sea, marshalled in numerous lines, and return in the same order about the beginning of April: they remain the whole winter in Egypt, and are so tame, that they enter the cities, and alight upon the windows of the houses; their sight is so quick, and their flight so steady, that they catch in the air the bits of meat that are thrown to them [A].

[A] Mr. Pennant represents the Kite as larger than is stated by the Count; it weighs forty-four ounces, and is twenty-seven inches long. It inhabits England in all seasons.

8  L

N^o 8



THE COMMON BUZZARD

The B U Z Z A R D*.

La Buse, Buff.*Falco Buteo*, Linn.*Goiran*, Hist. de Lyons.*Maasse Geyer*, Gunth.*Pojana Secunda*, Zinn.

THE Buzzard is so common and so well known, that it requires no particular description. Its length is twenty or twenty-one inches; its alar extent four feet and an half; its tail is only eight inches, and the wings, when closed, reach a little beyond its point; the iris is of a pale yellow, and almost whitish; the cere and feet are yellow, and the nails black.

This bird resides the whole year in our forests; it appears stupid, whether in the domestic state, or in that of liberty; it is sedentary, and even indolent; it often continues for several hours together perched upon the same tree; its nest is constructed with small branches lined in the inside with wool, and other soft, light materials; it lays two or three eggs, which are whitish,

* In Italian, it is called *Buzza* or *Bucciario*. The Latin name is *Buteo*; the Greek Τετοχνης, probably from the notion that it had three testicles τετεις and ορχις.

spotted

spotted with yellow. It feeds and tends its young longer than the other birds of prey, most of which expel their brood before they are able to provide with ease for themselves. Ray even affirms that if the mother happen to be killed in the time of her tender charge, the male Buzzard patiently discharges the trust.

This bird of rapine does not seize its prey on the wing; it sits on a tree, a bush, or a hillock, and darts upon the humble game that comes within its reach. It catches young hares and young rabbits, as well as partridges and quails; it commits havoc upon the nests of most birds; and when more generous subsistence is scanty, it subsists upon frogs, lizards, serpents, and grass-hoppers.

This species is subject to great variety, so that if we compare five or six common Buzzards together, we shall scarcely find two that are alike. Some are entirely white; in others, the head only is white; others again are mottled with brown and white. These differences are owing chiefly to the age and sex, for they are all found in our own climate [A].

[A] The specific character of the Buzzard, *Falco Buteo*, LINN.
—“Its cere and feet are yellowish, the body dusky, the abdomen
“pale, with dirty spots, the tail streaked with dusky colours.”

The HONEY BUZZARD.

La Bondrée, Buff.

Falco Apivorus, Linn.

Pojana, Zinn.

AS the Honey Buzzard differs but little from the Common Buzzard, they have been distinguished by those only who have carefully compared them. They have indeed more analogous than discriminating characters, but the difference of external appearance and of natural habits, is sufficient to constitute two species; which, though allied, are yet separate and independent. The Honey Buzzard is as large as the Buzzard, and weighs near two pounds; its length from the point of the bill to the end of the tail is twenty-two inches; its wings extend four feet two inches, and when closed reach to three-fourths of the tail; its bill is rather longer than that of the Buzzard; the cere is yellow, thick, and unequal*; its nostrils are long and curved; when the bill opens, the mouth appears very large and of a yellow colour; the iris is of a bright yellow; the legs and feet are of the same colour,

* Some naturalists have said that the bill is black; but we may presume that this difference is owing to age, since it is first white; perhaps it becomes successively yellow, brown, and black.

and the nails, which are not much hooked, are strong and blackish; the head is large and flat, and of a grey cinereous. A full description of this bird occurs in the work of Brisson and in that of Albin; the last author, after describing the external parts of the Honey Buzzard, says, that its intestines are shorter than in the Common Buzzard; and he adds, that there are found in the stomach of the Honey Buzzard several green caterpillars, as also some common caterpillars and other insects.

These birds, as well as the Common Buzzards, build their nests with small sticks, and line them with wool; their eggs are of an ash-colour, and marked with small brown spots. Sometimes they take possession of the nests of other birds; for they have been found in an old nest of the Kite. They feed their young with crysalids, and particularly with those of wasps. The heads and different portions of wasps have been discovered in a nest in which were two young Honey Buzzards. At that tender age, they are covered with a white down, spotted with black; the feet are of a pale yellow, and the cere white. In the stomach of these birds, which is very large, there are also found entire frogs and lizards. The female is larger than the male, and both trip and run, without the assistance of their wings, as fast as our dunghill cocks.

Though Belon says that there is not a young shepherd in Limagne in Auvergne, who is not acquainted

acquainted with the Honey Buzzard, and could not catch it with a snare baited with frogs, or bird-lime, or even with a noose, it is certain that at present they are more rare in France than the Common Buzzard. Among twenty Buzzards brought to me at different times in Burgundy, there was not a single Honey Buzzard; nor do I know from what province the specimen came which we have in the king's cabinet. Salerne says, that in the country of Orleans, the Common Buzzard is named Honey Buzzard; but these may be different birds.

The Honey Buzzard generally sits upon low trees to spy its prey. It catches field mice, frogs, lizards, caterpillars, and other insects. It scarcely flies but from tree to tree, or from bush to bush, always low; nor does it soar like the Kite, which it resembles by its instincts, but from which it can be readily distinguished by its motions and the shape of its tail. It is common to place snares for the Honey Buzzard, because in winter it is very fat and delicate to eat.

The BIRD SAINT MARTIN.

L'Oiseau Saint Martin, Buff. and Bel.

Falco Cyaneus, Linn.

Falco Torquatus (Mas.) Briff.

Pygargus Accipiter (Mas.) Ray and Will.

Falco Albanella, Gerin.

Lanarius Cinereus, Fris.

Falco Plumbeus Cauda Tesselata, Klein.

Hen Harrier, Penn. Edw. Will. Alb. and Lath.

THE modern naturalists have given this bird the name of *Lanner Falcon* or *Cinereous Lanner*; but it appears to be of a different genus from either the Falcon or the Lanner. It is rather larger than the common crow, and its body is proportionally more delicate and flexible. Its legs are long and slender: whereas those of the Falcon are robust and short; and the Lanner is described by Belon to be still lower on its legs than any Falcon; but in this character it resembles the White John and the Ring-tail. The only analogy therefore which subsists between it and the Lanner, is founded in the habit of tearing with its bill all the small animals which it catches, and in not swallowing them entire like the other large birds of prey. It ought, says Edwards, to be classed with the Long-tailed Falcons: in my opinion, it should be
ranged

ranged with the Buzzards, or rather placed next the Ring-tail, to which it is similar in its instincts, and in many of its properties*.

This bird is pretty common in France, as well as Germany and England; the specimen which we have figured was killed in Burgundy. Frisch has given two plates of this same bird, N^o 79 and 80, which differ so little from each other, that we cannot consider them, as he does, a different species; for the varieties which he remarks are so slight, that they must be ascribed solely to age or sex. Edwards, who also presents an engraving of this bird, says, that the specimen from which it was taken was killed near London; and he adds, that it was observed to flutter about the foot of some old trees, and sometimes to strike the trunks with its bill and claws, and that the reason of the motion could not be perceived till after its death, when the body being opened, there were found in its stomach twenty small lizzards, torn or cut into two or three portions.

* Belon does not hesitate to say, that it is of the same species with the White John, and at the same time he admits, that it is much like the Kite. "There is still another species of the White John or St. Martin, called *White-tail*, of the same kind with the abovesaid; but in colour it is much more like the Royal Kite, though more slender—It resembles the Royal Kite so much, that we could not perceive the difference, were it not smaller and whiter under the belly, the feathers on the rump being white both above and below, and hence it is named *White-tail*."

When we compare this bird with what Belon says of this second Saint Martin, we cannot doubt of their identity; and besides the resemblance in point of size, shape, and colour, their natural habits of flying low, and searching eagerly and incessantly for small reptiles, belong not so much to the Falcons and other noble birds, as to the Buzzard, the Harpy, and others which partake of the groveling manners of the Kites. This bird, which is well described and figured by Edwards, is different from what the authors of the British Zoology name the *Hen Harrier*. These are distinct birds, of which the first, what we call after Belon the *Saint Martin*, has, as I have said, been mentioned by Frisch and Brisson under the name of *Lanner-Falcon* or *Cinereous Lanner*; the second, which is the *Subbuteo* of Gefner, and which we term *Soubuse*, has been named *White-tail-Eagle* by Albin, and *Collared-Falcon* by Brisson. Besides, the falconers call this bird Saint Martin, the *Hawk Harpy*. *Harpy* is among them a generic name, which they apply not only to the bird Saint Martin, but to the Ring-tail and the Red Buzzard, of which we shall afterwards speak.



N^o 9



THE RINGTAIL FALCON.

The SOUBUSE.

La Soubuse, Buff.

Falco Pygargus, Linn.

Falco Torquatus (fem.) Briff.

Ring-tail, Penn. Alb. Will. Lath. &c.

THIS bird resembles the Saint Martin in its instincts and habits; both fly low to catch field-mice and reptiles; both enter the outer-court, and haunt the places where poultry is kept, to seize young pigeons and chickens; both are ignoble birds, which attack only the weak and feeble, and therefore deserve neither the name of Falcons nor that of Lanners.

The male, as in other rapacious birds, is much smaller than the female, and is besides distinguished by the want of a collar, that is of small feathers bristled round the neck. This difference seemed to constitute a specific character; but very skilful falconers assured us, that it was only sexual; and upon examining more closely, we found the same proportions between the tail and the wings, the same distribution of colours, the same form of the neck, head, and bill, &c. so that we could not oppose their opinion. But what occasioned more difficulty was, that almost all the naturalists have given the Ring-tail a different male, which is what we have named

Saint Martin; and it was only after numberless comparisons that we determined to set aside their authority. We shall remark that the Soubuse is found both in France and in England; that it has long and slender legs like the Saint Martin; that it builds its nest in thick bushes, and lays three or four reddish eggs; and that these two birds, with the one which we shall mention in the next article by the name of Harpy, form a small genus more nearly allied to the Kites and Buzzards than to the Falcons. [A]

[A] Both this and the preceding article are involved in obscurity, arising from the opposite opinion of naturalists; some maintaining that the former is only the male of the latter, while others consider them as of different species. The Saint Martin, or Hen-harrier (*Falco Cyaneus*, LINN.) is thus characterised:—"Its cere is white; its feet tawny; its body of a hoary cœrulean, and a white arch above the eyes encircling the gullet." The Soubuse or Ring-tail (*Falco Pygargus*, LINN.):—"Its cere and feet are yellow; its body cinereous; its lower-belly palish, with rufous oblong spots; its orbits white." To throw greater light upon the subject we shall borrow the account given in the British Zoology.

"The male, or the Hen-harrier, weighs about twelve ounces; the length is seventeen inches; the breadth three feet three inches; the bill is black; cere, irides, and the edges of the eye-lids, yellow; the head, neck, and coverts of the wings, are of a bluish grey; the back of the head white, spotted with a pale brown; the breast, belly, and thighs, are white; the former marked with a few small dusky streaks: the scapular feathers are of a deep grey, inclining to dusky; the two middle feathers of the tail are entirely grey; the others only on their exterior webs; the interior being white, marked with some dusky bars; the legs are yellow, long, and slender.

"The female weighs sixteen ounces; is twenty inches long; and three feet nine inches broad: on the hind part of the head, round the ears to the chin, is a wreath of short stiff feathers of a dusky hue,

tipt

tip with a reddish white; on the top of the head and the cheeks the feathers are dusky, bordered with rust colour; under each eye is a white spot; the back is dusky; the rump white, with oblong yellowish spots on each shaft; the tail is long, and marked with alternate bars of dusky and tawny, of which the dusky bars are the broadest; the breast and belly are of a yellowish brown, with a cast of red, and marked with oblong dusky spots.

The H A R P Y*.

La Harpaye, Buff.*Circus Rufus*, Gmel.*Fisch-Geyer*, *Brand-Geyer*, Frisch.*Harpy Falcon*, Lath.

HARPY is an ancient generic name which has been bestowed upon the Moor or Marsh Buzzards, and some other kindred tribes; such as the Ringtail and the Hen-harrier, which has been termed the *Hawk Harpy*. We have considered the name as specific, and have applied it to the bird which falconers at present call *Red-harpy*, and which our nomenclators term *Red-buzzard*; and Frisch, improperly, *Middle Lanner Vulture*, as he has also improperly termed the Marsh Buzzard, *Great Lanner Vulture*. We have preferred the simple name of *Harpy*, because it is certain that this bird is neither a Vulture nor a Buzzard. Its habits are the same with those of the two birds which we have treated in the two preceding articles. It catches fish like the White John, and draws them alive out of the water. It seems, says

* It is distinguished by " its yellow feet, its rufous body variegated with longitudinal spots, its back being dusky, and the feathers of the tail cinereous." The irides are saffron-coloured. Its length is twenty inches.

Frisch, to have a more acute sight than any of the other birds of rapine, its eye-brows being more projected. It is found both in France and in Germany, and loves to haunt the sides of rivers and pools. In its instincts it resembles the preceding, and therefore we shall not be more particular.

The MOOR BUZZARD*.

Le Bufard, Buff.

Falco Æruginosus, Linn. Gmel. Ray, Will. Klein, & Frisch.

Falco Bæticus, Gerin.

Faux-Perdrieux, Belon.

Il Bozzargo, Cet.

Il Nibbio, Zinn.

THIS bird was formerly called the *Bastard Partridge*, and some falconers term it the *White-headed Harpy*. It is more voracious and less sluggish than the Common Buzzard; and this is perhaps the only reason that it appears not so stupid and more vicious. It commits dreadful havoc among the rabbits, and is equally destructive to the fish as to the game. Instead of haunting, like the Common Buzzard, the mountain-forests, it lodges only in the bushes, the hedges, and rushes near pools, marshes, and rivers that abound with fish. It builds its nest at

* The Greek name is *Κίρκος*, whence the Latin *Circus*. In French it is commonly termed the *Marsh Bufard*; but as in that country there exists only one species of it, Buffon preserves the simple name of *Bufard*. "Its cere is greenish; its body grey; its crown, throat, *axillæ*, and feet, are yellowish." It varies extremely in regard to colour: in some the body is ferruginous, and the crown alone yellowish; in some it is dusky ferruginous, and the crown and throat yellowish; in a few instances the whole bird is of an uniform dusky ferruginous. The egg is whitish with dirty spots, sprinkled with some dusky spots.

a small

Nº10



THE MOOR BUZZARD.

B  L

a small height above the surface of the ground in the bushes, or even in hillocks covered with thick herbage. It lays three eggs, sometimes four; and though it appears to be more prolific than the Common Buzzard, and, like it, is a stationary bird, a native of France, where it continues the whole year, it is however more rare, or at least more difficult to be found.

Though the Moor Buzzard resembles the Black Kite in many respects, we must take care not to confound them; for the Moor Buzzard has, like the Common Buzzard, the Honey Buzzard, &c. a short thick neck; whereas the Kite has a much larger one. And the Moor Buzzard is distinguished from the Common Buzzard: first, by the places it haunts; secondly, by its flight, which is more rapid and steady; thirdly, because it never perches upon large trees, but rests upon the ground, or in the bushes; fourthly, by the length of its legs, which, like those of the Hen-harrier and Ringtail, are proportionally taller and slenderer than those of the other birds of rapine.

The Moor Buzzard prefers water-fowl; as divers, ducks, &c. It catches fish alive, and transports them in its talons; and when nobler prey fails, it feeds upon reptiles, toads, frogs, and aquatic insects. Though smaller than the Common Buzzard, it procures a more plentiful subsistence; probably because it is more active and vigorous in its movements, and has a keener

keener appetite: it is also more courageous. Belon asserts, that he has seen it trained to hunt and catch rabbits, partridges, and quails. It flies more heavily than the Kites; and, when it is pursued by the Falcons, it does not rise into the air, but flies in a horizontal direction. A single Falcon is not able to get the better of it, and it would require two or three to be let loose at once; for, like the Kite, it meets its antagonist, but makes a more vigorous and bold defence. The hobbies and the kestrels are afraid of it, decline the conflict, and even fly its approach.

FOREIGN BIRDS,

WHICH RESEMBLE THE KITE, THE
BUZZARDS, AND THE RINGTAIL.

I.

THE bird which is named by Catesby the *Swallow-tailed Hawk**, and by Brisson the *Carolina Kite*. This bird, says Catesby, weighs fourteen pounds; its bill is black and hooked; but it has no whiskers on the sides of the upper mandible, as the other Hawks; its eyes are very large and black, and the iris red; the head, the neck, the breast, and the belly, are white; the shoulders and the back are of a deep purple, but more brownish below, with a green tint; the wings are long in proportion to the body, and when expanded, measure four feet; the tail of a deep purple, mixed with green, and much forked, the longest feather on the sides exceeding by eight inches the shortest of the middle. These birds continue long on wing,

* *Falco Furcatus*, Linn. *Falco Peruvianus Cauda Furcata*, Klein.
Hirundo Maxima Peruviana, Feuil.

Its specific character:—"Its cere dull coloured; feet yellowish; the body dusky above, and whitish below; the tail forked, and very long." It is smaller than the Kite, but as long. The irides are red; the head and neck snowy; the back dusky or black, shining with purple or green.

like

like the swallows, and in their flight catch beetles, flies, and other insects on the trees and bushes. It is said that they prey upon lizards and serpents, which have induced some to call them *Snake-Hawks*. I believe, subjoins Catesby, that they are birds of passage, never having seen them during the winter.

We shall only observe, that the bird here mentioned is really not a Hawk, having neither the shape nor the instincts. In both these characters it bears a much closer resemblance to the Kite; and, if we must not consider it as a variety of the European sort, we may at least conclude that it is far more allied to that bird than to the Hawk.

II.

The bird called by the Indians of Brazil *Caracara*, and of which Marcgrave gives a figure and a very short description; for he contents himself with saying, that the *Caracara* of Brazil, named *Gavion* by the Portuguese, is a kind of Sparrow-hawk, or small Eagle (*Nisus*), of the size of a Kite; that its tail measures nine inches, its wings fourteen, and reach not so far as the end of the tail; the plumage rusty, and spotted with white and yellow points; the tail variegated with white and brown; the head similar to that of the Sparrow-hawk; the bill black, hooked, and moderately large; the feet yellow, the claws like those of the Sparrow-hawk, with nails that are semilunar, long, black, and very sharp;

sharp; the eyes of a fine yellow. He adds, that this bird is very destructive to poultry, and that it admits of a considerable variety, some individuals having the breast and belly white.

III.

The bird found in the tracts contiguous to Hudson's-bay, which Edwards terms the *Asb-coloured Buzzard*, and which he describes nearly in the following words:—This bird is of the bulk of a cock, or a middle-sized hen; it resembles the Common Buzzard in its shape and the disposition of its colours; the bill and the cere are of a bluish leaden-colour; the head and the upper part of the neck are covered with white feathers, spotted with deep brown in their middle; the breast is white, like the head, but it is mottled with larger brown spots; the belly and sides are covered with brown feathers, marked with white round or oval spots; the legs are clothed with soft white feathers, speckled irregularly with brown; the coverts of the under part of the tail are radiated transversely with black and white; all the upper parts of the neck, of the back, of the wings, and of the tail, are covered with feathers of a brown cinereous colour, deeper in the middle, and lighter near the edges; the coverts of the lower parts of the wings are of a dark brown, with white spots; the feathers of the tail are barred above with narrow lines of an obscure colour, and barred below with white lines; the legs and

feet are cinereous bluish; the nails are black, and the legs covered half their length with feathers of a dull colour. Edwards adds, that this bird, which is found about Hudson's-bay, preys chiefly upon the white grouse. After comparing this bird as thus described with the Common Buzzards, the Ringtails, the Harpies, and the Moor-Buzzards, it appeared to us to differ from them all, by the shape of its body, and the shortness of its legs. It has the port of the Eagle; its legs are short like those of the Falcon, and blue like those of the Lanner. We ought therefore to refer it to the genus of the Falcon or of the Lanner, rather than to that of the Buzzard. But as Edwards is one of the ablest ornithologists, we have relinquished our opinion and adopted his; and for this reason we have placed this bird after the Buzzards.

BOL

N^o 11



THE SPARROW-HAWK .

The SPARROW-HAWK*.

L'Epervier, Buff.*Falco Nifus*, Linn.*Accipiter*, Briss.*Accipiter Fringillarius*, Ray, Will. and Klein.*Nifus Striatus*, *Sagittatus*, Fris.*Lo Sparviero*, Cett.*Sperver*, Gunth.

THOUGH nomenclators have reckoned several species of Sparrow-hawks, we are of opinion that they may all be reduced to one. Brisson mentions four species, or varieties; viz. the Common Sparrow-hawk, the Spotted Sparrow-hawk, the Small Sparrow-hawk, and the Lark Sparrow-hawk. But we have discovered that this Lark Sparrow-hawk is only a female Kestrel. We have also found that the Small Sparrow-hawk is but the Tiercel, or male of the Common Sparrow-hawk; so that there remains only the Spotted Sparrow-hawk, which is merely an accidental variety of the common species of the Sparrow-hawk. Klein is the first who has mentioned this variety; and he says, that it was sent to him from the country of Marienbourg: we ought therefore to refer the Small Sparrow-

* The Greek epithet is *Σπιζαε*, *Fringillarius*; and the Latin appellation, *Accipiter Fringillarius*, because it preys upon chaffinches (*fringilla*) and other small birds.

hawk and the Spotted Sparrow-hawk to the common species, and exclude the Lark Sparrow-hawk, which is only the female Kestrel.

It appears that the Sorrel Tiercel of the Sparrow-hawk, N^o 466, pl. Eul. differs from the Haggard Tiercel, N^o 467, pl. Eul. the breast and belly of the former being much whiter, and with a much smaller mixture of rust-colour than in the latter, in which these parts are almost entirely rust, and crossed with brown bars; in the former the breast is marked with spots, or with much more irregular bars. The male Sparrow-hawk is called *Tassel** by the falconers; its back receives more brown as it grows older, and the transverse bars on the breast are not very regular till it has undergone the first or second moult: the same may be observed of the female, N^o 412, pl. Eul. To give a fuller idea of the changes in the distribution of the colours, we shall remark that the spots on the breast and belly of the Sorrel Tiercel are almost all detached, and form rather the figure of a heart, or rounded triangle, than a continued and uniform succession of a brown colour, such as we perceive in the bars on the breast and belly of the Haggard Tiercel, that is of the Tiercel which has had two moultings: the same changes happen in the female, in which the brown transverse belts are in the first year only unconnected spots. It will be found in the following article that the Gos-

* *Mouchet*.

hawk is still more remarkable for the variations of colour. Nothing more clearly demonstrates that the characters which our nomenclators have drawn from the distribution of colours are insufficient, than that the same bird has the first year spots or brown longitudinal bars extending downwards; and the second year is marked with transverse belts of the same colour. This singular change is more striking in the Goshawk, and in the Sparrow-hawks; but it occurs in a certain degree also in other species of birds. In short, all the systems that are founded upon difference of colour and distribution of spots, are in the present case entirely futile.

The Sparrow-hawk continues the whole year in our provinces. The species is numerous; I have received many in the depth of winter that had been killed in the woods; at that time they were very lean, and weighed only six ounces. They are nearly of the size of a magpie. The female is much larger than the male; she builds her nest on the loftiest trees of the forest, and generally lays four or five eggs, which are spotted with a yellow reddish near the ends. The Sparrow-hawk is docile, and can be easily trained to hunt partridges and quails; it also catches pigeons that stray from their flock, and commits prodigious devastation on the chaffinches, and other small birds which troop together in winter. It is probable that the Sparrow-hawk is more numerous than we suppose; for besides

those that remain the whole year in our climate, it appears at certain seasons to migrate in immense bodies to other countries *; and the species is found scattered in the ancient continent †, from Sweden ‡ to the Cape of Good Hope ||.

* I must here transcribe a passage of considerable length from Belon, which proves the migration of these birds, and even points out the time when they begin their flight:

“ We were at the mouth of the Pontus Euxinus, where begins the strait of the Propontis: we ascended the highest mountain, and found a bird-catcher very successfully employed; and, as it was about the end of April, when no birds can build their nests, we thought it strange that so many Kites and Sparrow-hawks should flock thither. The bird-catcher was very assiduous, and scarcely allowed one to escape; he caught more than a dozen in an hour. He was concealed behind a bush, and in front, about two or three paces distant, he had constructed a close square airy measuring two paces; round it were fixed six staves, three on each side, an inch thick, and about a man's height, and on the top of each a notch was cut; a very fine green net was fastened to these notches, and spread a man's height from the ground; in the middle of the space was a stake of a cubit high, and to the top of which was attached a cord that led to the person concealed behind the bush; to this cord several birds were fastened, and fed on grain within the airy. When the bird-catcher perceived the Sparrow-hawk advancing from the sea, he scared these birds; and the Sparrow-hawk, whose sight is so keen as to descry them at the distance of half a league, shot with expanded wings to seize his prey, and in the eagerness and rapidity of his motion was entangled in the net. The person then took the bird, and slipped it into a linen bandage ready sewed, which confined the wings, thighs, and the tail, and threw it upon the ground, where it could not stir. We could not conceive whence the Sparrow-hawks came, for during the two hours that we staid, more than thirty were caught; so that in a day one man might catch above a hundred. The Kites and Sparrow-hawks arrived in a chain that extended as far as the eye could reach.” BELON, *Hist. Nat. des Oiseaux*.

† The Sparrow-hawks are common in Japan, as well as in every part of the East Indies. KÆMPFER.

‡ LINNÆUS, *Fauna Suecica*.

|| Kolben.

[A] The

[A] The specific character of the Sparrow-hawk, *Falco Nifus*, LINN. is "That its cere is greenish; its feet yellow; the abdomen white, waved with grey, and blackish streaks on the tail." There are two varieties belonging to it.

First, The Spotted Sparrow-hawk. Its back is earthy-coloured, sprinkled with white spots; the under part of the body is squamous, and more deeply stained; the under surface of the wings and of the tail is varied with broad white zones, and dirty narrow stripes.

Secondly, The White Sparrow-hawk, which has been killed in England.

The G O S - H A W K.

L'Autour, Buff.

Falco Palumbarius, Linn. Gmel. Will. Klein, &c.

Astur, Briss.

Großer Gefeilter Falck, Frisch.

In Italian, *Astore*.

In German, *Habicht*, *Großer Habicht*.

In Polish, *Jastrzab wielki* *.

THE Gos-hawk is a beautiful bird, much larger than the Sparrow-hawk, which it however resembles by its instincts, and by a common character, that, in the birds of rapine, is confined to them and the Butcher-birds: this is, that their wings are so short as not to reach near the end of the tail. It resembles the Sparrow-hawk also by another circumstance;—the first feather of the short wing is rounded at the tip, and the fourth feather of the wing is the longest of all. Falconers divide these birds of sport into two classes; viz. those of falconry, properly so called, and those of *hawking* †: and in this second class they include not only the Gos-hawk, but the Sparrow-hawk, the Harpies, the Buzzards, &c.

* The Greek epithet is, *Ασπερίας*, *Stellaris*; and the Latin appellation, *Accipiter Stellaris*.

† *De l'autourserie*.

Nº 12



THE GOSHAWK.

B  L

The Gos-hawk, before it has shed its feathers, that is, in its first year, is marked on the breast and belly with longitudinal brown spots ranged vertically; but after it has had two moultings, these disappear, and their place is occupied by transverse bars, which continue during the rest of its life. Hence we are apt to be deceived with respect to this bird, from the change that happens in the disposition of the colours of the plumage. N° 461, pl. Eul. is a young one; N° 418, an old one.

The Gos-hawk is furnished with longer legs than other birds to which it bears a close analogy; as the White Jer-Falcon, which is nearly of the same size: the male is much smaller than the female: both are carried on the hand, and not used as decoys; they soar not so high as those whose wings are longer in proportion to their body; they have many habits in common with the Sparrow-hawk, yet they do not dart directly downwards upon their prey, but catch it by a side shoot. It appears by Belon's account that the Gos-hawk can be ensnared by a contrivance similar to what is practised against the Sparrow-hawk. A white pigeon, which can be perceived at a great distance, is placed between four nets, nine or ten feet high, inclosing a space of nine or ten feet each way round the pigeon, which is in the centre, the Gos-hawk descends obliquely, (a proof that he makes only side attacks,) pushes the net to reach his prize, and though
6 entangled,

entangled, he devours it, and till fated makes few attempts to escape.

The Gos-hawk is found in the mountains of Franche Compté, of Dauphinè, of Bugey, and even in the forests of the province of Burgundy, and in the neighbourhood of Paris; but it is still more common in Germany than in France, and the species seems to penetrate in the countries of the north as far as Sweden, and advance in those of the east and south, to Persia and Barbary. Those bred in Greece are, according to Belon, the best of all for falconry. "They have," says he, "a large head, a thick neck, and much plumage. Those of Armenia," he adds, "have green eyes; in those of Persia, they are light-coloured, hollow and sunk; in those of Africa, which are less esteemed, they are at first black, and after moulting, become red." But this character is not peculiar to the Gos-hawks of Africa; those of our own climate have eyes which assume a deeper red as they advance in age. There is, in the Gos-hawks of France, a difference or variety even of plumage and colour, which has drawn naturalists into a sort of mistake. They have applied the name of Moor Buzzard (*Busard*) to a Gos-hawk, whose plumage is light-coloured, and which is more indolent than the Brown Gos-hawk, and not so easily trained. It is, however, undoubtedly a Gos-hawk, though the falconers reject it. This light-coloured Gos-hawk admits even a slight variety,

variety, where the wings are spotted with white, from which circumstance it has been called the *Variegated Moor Buzzard*. But both these birds are really Gos-hawks.

I kept for a long time a male and a female of the Brown Gos-hawk: the female was at least a third larger than the male, and its wings, when closed, did not reach within six inches of the end of the tail: it was more bulky at four months old, which I conceive to be the term of the growth of these birds, than a large capon. During the first five or six weeks, these birds were of a grey white; the back, the neck, and the wings, became gradually brown; the belly and the under-part of the throat did not change so much, and were generally white or yellowish white, with longitudinal brown spots the first year, and transverse brown bars the following years. The bill is of a dirty blue, and the cere is of a leaden colour; the legs are featherless, and the toes of a deep yellow; the nails are blackish, and the feathers of the tail, which are brown, are marked with very broad bars of a dull grey colour. During the first year, the feathers under the throat are in the male mottled with a reddish colour, by which circumstance it differs from the female; though, if we except the size, it closely resembles it in other respects.

It was observed, that though the male was much smaller than the female, it was fiercer and
more

more vicious ; they were both difficult to tame ; they fought often, but rather with their claws than with their bill, which they seldom employ but to tear the birds or other small animals that they want to catch ; they turn upon their back and defend themselves with their spread talons. Though confined in the same cage, they were never perceived to contract the least affection for each other. They continued together a whole summer, from the beginning of May to the end of November, when the female in a violent fit of rage, murdered her mate, at nine or ten o'clock in the evening, when the silence of night had soothed the rest of the feathered race in profound repose. Their dispositions are so bloody, that if a Gos-hawk be left with several Falcons, it butchers them all, one after another. It appears, however, to prefer the common and field mice and small birds, and eagerly devours raw flesh, but constantly declines meat that has been cooked ; however, by long fasting, it can be brought to overcome this natural aversion. It plucks the birds very neatly, and tears them into pieces before it feeds ; but it swallows the mice entire. Its excrements are whitish and watery ; it often disgorges the skins of the mice rolled together. Its cry is raucous, ending always in sharp notes, the more disagreeable the oftener they are repeated ; it discovers a constant uneasiness when a person approaches ; it startles at every thing ; so that a person

person cannot pass near the cage where it is kept, without throwing it into violent agitations, and occasioning repeated screams. [A]

[A] The specific character of the Gos-hawk (*Falco Palumbarius*, LINN.) is, "That its cere is black, the margin and feet yellow, the body dusky, the tail feathers marked with pale bars, the eye-brows white." It is larger than the Common Buzzard, being one foot ten inches long, but it is of a slender and more elegant shape. It is found in Europe, Asia, and America.

FOREIGN BIRDS,
THAT ARE RELATED TO THE SPARROW.
HAWK AND GOS-HAWK.

I.

THE bird which we have received from Cayenne without any name, and which we have termed *Thick-billed Sparrow-hawk of Cayenne**, (N^o 464, pl. Eul.) for it resembles the Sparrow-hawk more than any other bird of prey; being only somewhat larger and rounder shaped. Its bill is also thicker and longer, but the legs rather shorter. The lower part of the throat is of an uniform wine colour; whereas, in the Sparrow-hawk it is white, or whitish: but in general the resemblance is so close, that we may consider it as a kindred species, and perhaps the difference originates from the influence of climate.

II.

The bird sent from Cayenne without a name, and to which we have given that of the *Little Gos-Hawk of Cayenne*, because it was considered by skilful falconers as of the Gos-hawk kind. I must indeed own, that it appeared to us to have more resemblance to the Lanner, as de-

* *Epervier à gros bec de Cayenne.*

scribed by Belon, than to the Gos-hawk ; for its legs are short and of a blue colour, which are two characters of the Lanner : but perhaps it is neither the one nor the other. We every day commit mistakes in attempting to refer the birds and quadrupeds of foreign countries to those of our own climate : and such may be the case in the present instance.

III.

The Carolina bird, described by Catesby under the name of *Pigeon-hawk*, which is more slender than the common Sparrow-hawk. Its iris, cere, and feet yellow ; its bill whitish at its origin, and blackish near the hook ; the upper part of the head, neck, back, rump, wings, and tail covered with white feathers, mixed with some brown ones ; the legs clothed with long white plumage, tinged slightly with red, and variegated with longitudinal brown spots. The feathers of the tail are brown like those of the wings, but marked with four white transverse bars.

The JER-FALCON.

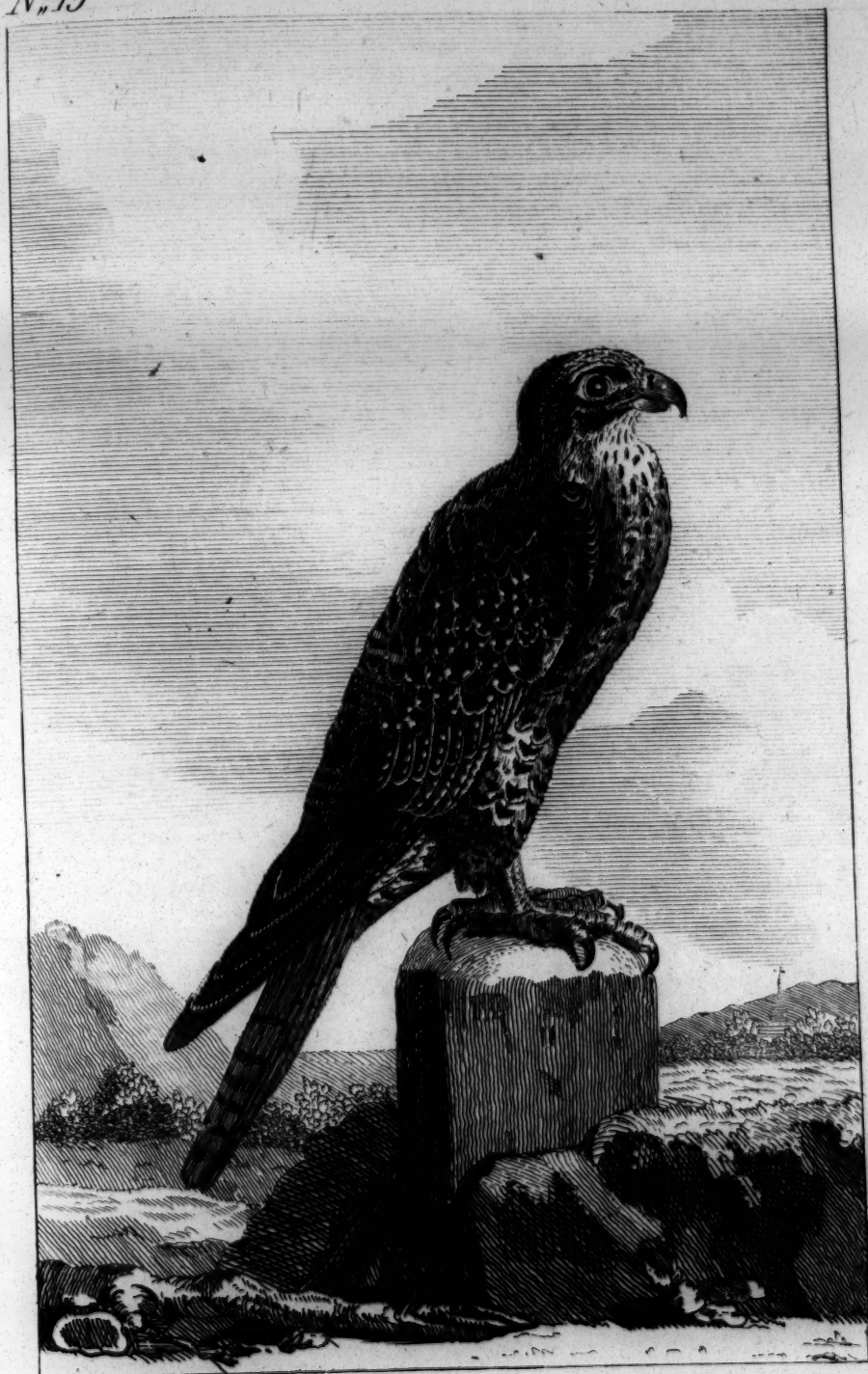
Le Gerfaut, Buff.

THE Jer-falcon, both in its figure and its dispositions, deserves to be ranked the first of all the birds of falconry. It exceeds them all in point of size, being at least equal in bulk to the Gos-hawk. It differs from them by certain general and invariable characters which belong exclusively to those peculiarly calculated for sport. These noble birds are, the Jer-falcons, the Falcons, the Sacres, the Lanners, the Hobbies, the Merlins, and the Kestrels; their wings are almost as long as their tail; the first feather of the wing, called *the * hoop*, is nearly as long as that inserted next it, and about an inch of the extremity is sharpened into a figure resembling the blade of a knife. In the Gos-hawks, the Sparrow-hawks, the Kites, and the Buzzards, the tail is longer than the wings, and the first feather of the wing is much shorter, and is rounded at the end. Besides, the longest feather in these is the fourth of the wing, but it is the second in the former. We may add, that the Jer-falcon differs from the Gos-hawk

* *Cercean.*

also

N^o 13



THE WHITE JERFALCON .

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also by its bill and feet, which are bluish, and by its plumage, which is brown on all the upper part of the body, and white spotted with brown on the under, and its tail, which is gray, and barred with dusky lines. (N^o 210, Pl. Enl.) This bird is common in Iceland, and it appears that there is a variety in the species; for we have received from Norway a Jer-falcon, which is found in all the arctic regions, (N^o 462, Pl. Enl.) but differs somewhat from the other by the shades and distribution of the colours, and which is more esteemed by the falconers than that of Iceland, on account of its greater courage, activity, and docility. But there is another variety, (Pl. Enl. N^o 446.) which is entirely white, and which, if it were not found alike in all the dreary tracts of the north, might be ascribed to the influence of the climate. Intelligent falconers inform me, that the young have the same colour, which they always retain; we can neither attribute the change therefore to extreme age nor excessive cold. It is therefore probable, that there are three distinct and permanent breeds of the Jer-falcons; viz. the Iceland Jer-falcon, the Norwegian Jer-falcon, and the White Jer-falcon. These birds are natives of the inhospitable arctic regions, both in Europe and in Asia; they inhabit Russia, Norway, Iceland, and Tartary, but are never found in the warm or even temperate countries. Next to the Eagle it is the most formidable, the most active, and the

most intrepid of all the rapacious birds; and it is also the dearest and the most esteemed for falconry. It is transported from Iceland and Russia into France*, Italy, and even into Persia and Turkey†; nor does the heat of these climates appear to diminish its strength or blunt its vivacity. It boldly attacks the largest of the feathered race; the stork, the heron, and the crane, are easy victims: it kills hares by darting directly down upon them.—The female, as in the other birds of prey, is much larger and stronger than the male, which is called the *Tiercel Jer-Falcon*, and is used in falconry only to catch the kite, the heron and the crows. [A]

* We should not see the Jer-falcon were it not brought from a foreign country; it is said to come from Russia, where it breeds, and does not inhabit France or Italy, and is a bird of passage in Germany.—It may be flown against any thing, and is bolder than any other bird of prey. BELON.

† The following passage seems to refer to the Jer-falcon: We must not omit to mention a bird of prey which comes from Muscovy, whence it is transported into Persia, and which is almost as large as an Eagle. These birds are rare, and only the king is permitted to keep them. As it is customary in Persia to estimate all the presents without exception that are made to the king, these birds are rated at one hundred *tomans* a-piece, which answers to one thousand five hundred crowns; and if any of them die on the road, the ambassador brings the head and the wings to his majesty. It is said that this bird makes its nest in the snow, which it melts to the ground by the heat of its body, sometimes to the depth of a fathom, &c. CHARDIN.

[A] Linnæus makes two species of the Jer-falcon: the first is *Falco Gyrfalco*, or Brown Jer-falcon; and is perhaps Buffon's Norwegian

Norwegian Jer-falcon: "Its cere is cœrulean, its feet yellowish, its body dusky, with cinereous stripes below, and the sides of the tail white." The second species is the *Falco Candidus*, or White Jer-falcon, and seems to be the same with that of Buffon. Its character is, "That its cere and feet are of a cœrulean cast, verging to cinereous, its body white, with dusky spots." And to this belongs a variety, which is the Iceland Jer-falcon, in which the body is dusky, with white spots on the back and wings, and below it is white spotted with black, and the feet are yellow.

The L A N N E R.

Le Lanier, Buff.

*Falco Laniarius**, Linn. Gmel. Ray, Briss. Klein, &c.
Lanneret, Alb.

In German, *Schwimer*, or *Schmeyermer*.

In Italian, *Laniero*.

THIS bird, which Aldrovandus calls *Laniarius Gallorum*, and which Belon says is a native of France, and more used by the falconers than any other, is now become so rare, that we could not procure a specimen of it. It occurs in none of our cabinets, nor is it found in the series of coloured birds by Edwards, Frisch, and the authors of the British Zoology. Belon himself, though he describes it at considerable length, does not give the figure; and it is the same with Gefner, Aldrovandus, and the other modern naturalists.—Briffon and Salerne confess that they never saw it; and the only figure that we have of it is in Albin, whose plates are known to be wretchedly executed. It appears then, that the *Lanner*, which is now so rare in France, has always been so in Germany, England, Switzerland, and Italy, since

* The name *Laniarius*, or *Lanner*, is derived from *laniare*, to tear; because the bird mangles cruelly the poultry and other victims of its rapine.

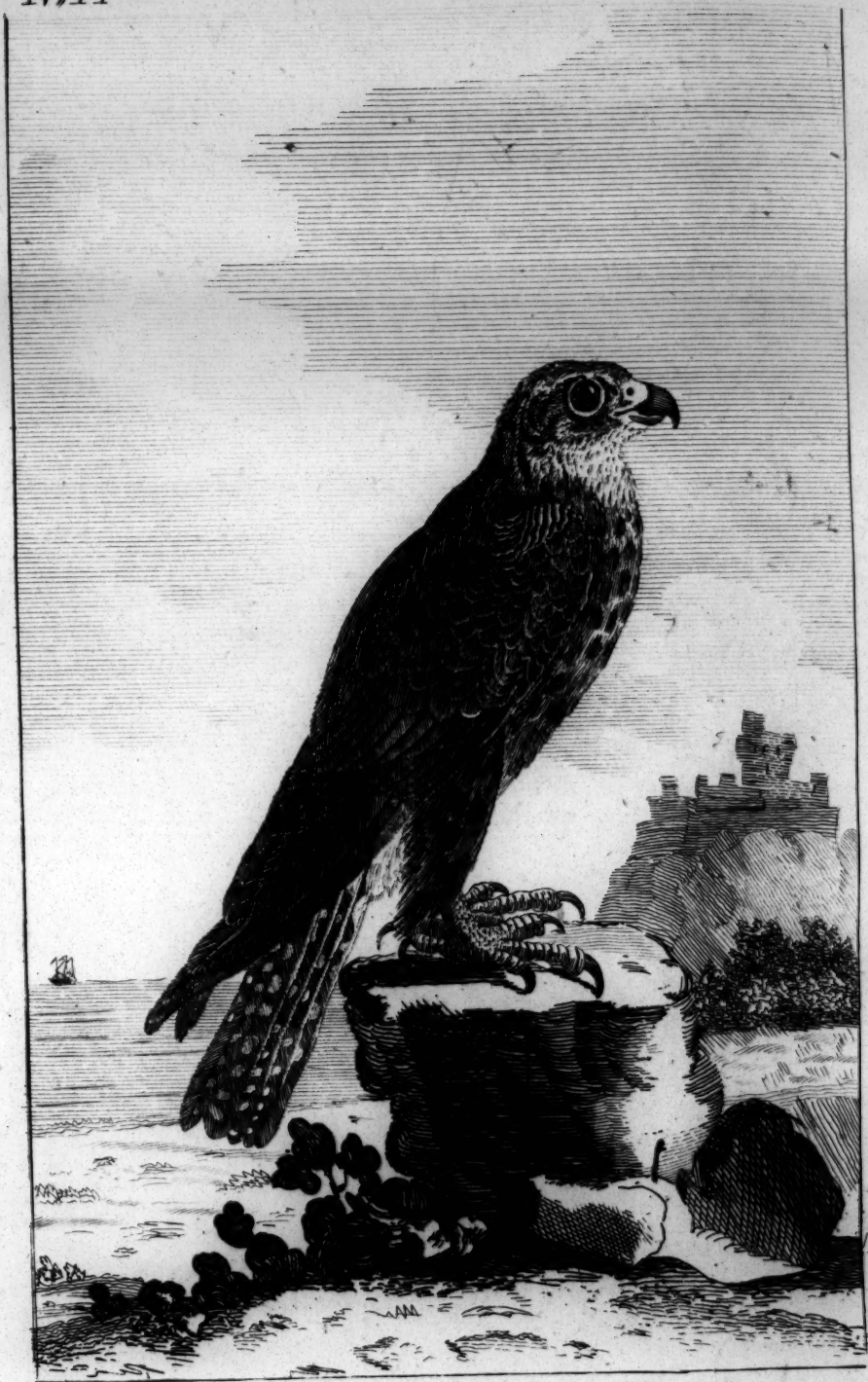
the authors of these countries mention it upon the authority of Belon. It is however found in Sweden, for Linnæus ranges it among the native birds of that country; but he gives only a slight description, and totally omits its history. All the information that we can obtain is from Belon, and we shall therefore transcribe his account. "The Lanner, or Lanner-falcon," says he, "generally constructs its aerie, in France, on the tallest trees of the forests; or on the most elevated rocks. As its dispositions are more gentle and its habits more flexible than the Common Falcons, it is used for every purpose. It is less corpulent than the Genteel Falcon, and its plumage is more beautiful than that of the Sacre, especially after moulting; it is also shorter than the other Falcons. The falconers prefer the Lanner that has a large head and blue-bordered feet; it flies both on rivers and on the plains. It subsists better than any other Falcon upon coarse flesh. It is easily distinguished, for its bill and feet are blue; the feathers on the front mottled with black and white, with spots stretching along the feathers, and not transverse as in the Falcon. . . . When it spreads its wings, the spots seen from below appear different from those of the other birds of prey; for they are scattered and round like small pieces of money (*deniers*). Its neck is short and thick; as also its bill. The female is called *Lanner*,

“ and is much larger than the male, which is
“ named *Lanneret*; they are both similar in the
“ colour of their plumage. It remains in the
“ country the whole year, and no bird is so
“ faithful to its favourite haunt. It is easily
“ trained to catch the Crane: the best time for
“ sport is after moulting, from the middle of
“ July to the end of October; but the winter
“ is an improper season.” [A]

[A] The specific character of the Lanner, *Falco Laniarius*, LINN. is, that “ its cere is yellowish, its feet and bill cœrulean, its body marked beneath with black longitudinal spots.” It inhabits Europe, but is not common in England; it is frequent in Iceland, the Feroe islands and Sweden, in the Uralian chain and other parts of Tartary, though not found in the east and north of Siberia. It breeds in low trees: it is smaller than the Buzzard.

B L

N^o 14



THE SACRED FALCON.

The S A C R E.

Le Sacre, Buff.*Falco Sacer*, Gmel. Briff. Will. Klein, &c.In German, *Sacker*.In Italian, *Sacro*.

I HAVE removed this bird from the Falcons, and placed it after the Lanner ; though some of our nomenclators consider it only as a variety of the species of Falcons : because, if we reckon it a mere variety, we ought to refer it to the Lanners rather than to the Falcons. Like the Lanner, the feet and bill of the Sacre are blue ; while those of the Falcons are yellow. This character, which appears specific, would incline us to conclude that the Sacre is but a variety of the Lanner ; but they differ widely in their size and the colour of their plumage, and seem rather to be two distinct though proximate kinds. It is somewhat singular that Belon is the only one who has noticed the distinguishing marks of this bird, and, without his assistance, naturalists would be scarcely, if at all, acquainted with the Sacre and the Lanner. Both have become very rare, and it is probable that their instincts are the same, and consequently that they are kindred tribes. But as Belon examined these birds, and has described them really distinct, we shall

transcribe his account of the Sacre, as we have already done that of the Lanner:—The plumage of the Sacre is inferior in beauty to that of the other birds of falconry; being of a dirty ferruginous colour, like that of the Kite. It is low, its legs and toes blue, in some degree similar to the Lanner. It would be equal to the Falcon in bulk, were it not more compact and rounder shaped. It is a bird of intrepid courage, and comparable in strength to the Pilgrim Falcon; it is also a bird of passage, and it is rare to find a man who can boast that he has ever seen the place where it breeds. Some falconers are of opinion that it is a native of Tartary and Russia, and towards the Caspian Sea; that it migrates towards the south, where it lives part of the year; and that it is caught by the falconers who watch its passage in the islands of the Archipelago, Rhodes, Cyprus, &c. And as the Sacre can be made to soar after the Kite, it can also be trained for rural sport, to catch wild geese, *bustards*, *olives*, pheasants, partridges, and every sort of game. The *Sacret* is the male, and the *Sacre* the female; the only difference between which consists in size.

If we compare this description of the Sacre with what the same author has given of the Lanner, we shall easily perceive, first, that these two birds are nearer related to each other than to any other species: secondly, that they are birds of passage; though Belon says that, in his
time,

time, the Lanner was a native of France, it is almost certain that it is not now found there: thirdly, that these two birds seem to differ essentially from the Falcons, because their body is rounder, the legs shorter, the bill and the feet blue, on which account we have separated them.

Some years have elapsed since we caused a bird of prey, which we were told was a Sacre, to be figured; but the description which was then made has been mislaid, and we cannot replace it. [A]

[A] The specific character of the Sacre, *Falco-Sacer*, LINN. is, "That its cere and feet are cœrulean; the back, breast, and coverts of the wings, mottled with dusky; the feathers of the tail marked with kidney-shaped spots." It inhabits Europe and Tartary. It is two feet long, and weighs two pounds eight ounces. Its feet are feathered almost to the toes.

To the same species belongs a variety, the *American Sacre*, or *Speckled Partridge Hawk*.—"Its cere and feet are cœrulean; its body, and the wing and tail feathers, marked with dusky pale bars; the head, breast, and abdomen, stained with dusky white longitudinal spots." It is a native of Hudson's-bay and other parts of North America. It preys on the white grouse, and will even seize them while the fowler is driving them into his nets. It breeds in April or May in unfrequented spots; and has, it is said, only two eggs. It is about the bulk of a crow.

The COMMON FALCON.

Le Faucon, Buff.

Falco Communis, Gmel. & Briss.

Accipiter Fuscus, Fris.

Il Falcone, Cet. uc. Sard.

In German, *Falck*; in Polish, *Sokol*; in Spanish, *Halkon*.

WHEN we look into the systems of our nomenclators in natural history*, we are apt to imagine that there are as many varieties in the Falcon as in the pigeon, the hen, and other domestic birds; but this conclusion is far from

* Briffon reckons thirteen varieties in this first species, viz. the Sorrel Falcon, Haggard Falcon, the White-headed Falcon, the White Falcon, the Black Falcon, the Spotted Falcon, the Brown Falcon, the Red Falcon, the Red Falcon of India, the Italian Falcon, the Iceland Falcon, and the Sacre. At the same time he counts twelve other species or varieties of the Falcon different from the first, viz. the Genteel Falcon, the Pilgrim Falcon, of which the Barbary and Tartary Falcons are varieties; the Collared Falcon, the Rock Falcon, the Mountain Falcon, of which the Cinereous Mountain Falcon is a variety; the Falcon of Hudson's-bay, the Stellated Falcon, the Crested Falcon of India, the Falcon of the Antilles, and the Fisher Falcon of Carolina. Linnæus includes twenty-six different species under the generic appellation of Falcon. It is indeed true that he confounds under that name, as he does every where else, all the species whether contiguous or remote; for we find eagles, ernes, ospreys, kestrels, buzzards, &c. ranged with the Falcons. The enumeration made by Briffon, though too large by a third, is at least conducted with more circumspection and discernment.

[Buffon seems to quote the tenth edition of the *Systema Naturæ*. The number of species belonging to the genus *Falco* has been since increased vastly. In the last edition published by Gmelin it amounts to one hundred and twenty.]

being

N^o 15



THE YOUNG FALCON.

B  L

being just. Their instinctive dispositions have not, in the least, been altered by man; and, though subservient to his pleasures, and flattering to his vanity, they still retain the native sense of independence, and refuse to multiply and transmit posterity under his dominion. The original ferocity of these birds is indeed broken by careful attention and multiplied restraints. They are obliged to purchase their existence by performing tasks that are exacted; not a morsel of food is granted but for a service received; they are fixed, pinioned, muffled; they are even excluded from light, and totally denied subsistence, to render them more dependent, more docile, and to add to their natural vivacity the urgency of want. But they serve from necessity and from habit, not from attachment; they remain captives, but never become domestics; the individual alone feels the weight of slavery; the species preserves its liberty constantly untainted, and never owns the empire of man. It requires the most watchful attention to surprise some straggling prisoners; and nothing is more difficult than to study their œconomy in the state of nature. As they inhabit the most rugged precipices on the loftiest mountains, and seldom alight upon the ground, but soar in the aerial regions, and fly with unequalled rapidity, few facts can be discovered with respect to their primitive instincts. It has only been observed, that they prefer breeding in rocks of a southern
expo-

exposure; that they build their nests in the most inaccessible *holes* and *caverns*; that they commonly lay four eggs in the latter months of the winter, and sit but a short time; for the young are adult about the fifteenth of May, and change their colour according to their sex, their age, and the season of moulting; that the females are much larger than the males; that the parents utter piercing, disagreeable, and almost incessant screams, when they expel their young; to which violent remedy they have recourse, like the Eagle, from hard necessity, which breaks the bonds of families, and dissolves the union of every society, as soon as the tracts inhabited afford not a sufficient subsistence.

The Falcon is perhaps that bird whose courage, compared with its strength, is the most open and the most conspicuous. It darts directly downwards without deviating from the perpendicular; while the Vulture, and most of the other birds of rapine, surprise their prey by an oblique descent. It alights vertically upon the feathered victim entangled in nets, kills it, and devours it upon the spot; or, if not too large, it carries the carcass aloft into the air. It prefers pheasants for its prey; and if it discovers a flock of them, it drops suddenly among them as if it fell from the clouds, because it descends from such an amazing height in so short a time that its visit is always unexpected. It frequently attacks the Kite, either to amuse its courage, or to seize

N^o 16



THE HAGGARD FALCON.

seize its prey ; but this is rather a contemptuous insult than an obstinate combat. It treats its enemy as a coward, pursues it, strikes it with disdain, and as it meets with but feeble resistance, it allows the Kite to escape with its life, being as much disgusted perhaps with the rankness of its carcass, as conciliated by the meanness of its conduct.

Those who inhabit the vicinity of our great mountains in Dauphiny, Bugey, and Auvergne, and the foot of the Alps, can ascertain the veracity of all these facts. There have been sent to the King's falconry from Geneva young Falcons that had been caught in the adjoining mountains in April, and which appeared to have acquired their full size and vigour before the month of June. When they are young they are called *Sorrel Falcons*, because they are then browner than in the following year (Pl. Enl. N° 470.); and the old Falcons, which are much whiter than the young, are termed *Haggards* (Pl. Enl. N° 421.). The Falcon represented in the last plate appears to be hardly two years old, and has still a great number of brown spots on the breast and belly ; for in the third year these spots diminish, and the quantity of white on the plumage increases (Pl. Enl. N° 430.).

As these birds every where seek the highest rocks, and as most islands are but groups and points of mountains, they abound in Rhodes,

Cyprus, Malta, and in the other islands of the Mediterranean, and even in the Orkneys and Iceland : but, according to the different climates which they inhabit, they admit of varieties, which it will be proper to mention.

The Falcon which is a native in France is about the size of a hen ; its extreme length is eighteen inches ; its tail is five inches ; and its wings when spread are three feet and a half, and when closed reach to the end of the tail. It is unnecessary to take notice of the colours of the plumage, because they vary with the age. I shall only remark, that the feet are commonly green, and that when the feet and the cere are yellow, they receive the name of *Yellow-billed-Falcons* (Pl. Enl. N^o 430.), and are considered as inferior to the others, and deemed unfit for the sport. The Tiercel is employed to catch partridges, magpies, jays, blackbirds, and others of that kind ; but the female is engaged in the nobler chace of the hare, the kite, the crane, and other large birds.

It appears that this species of Falcon, which is very common in France, is found also in Germany. Frisch has given a coloured figure of the Sorrel Falcon with yellow feet and cere, by the name of *Enter-stoffer*, or *Schwartz-braune Habicht* (i. e. *Plunderer of ducks*, or *Black-brown Hawk*) ; but he is mistaken in terming it *Brown Gos-hawk* (*Autour*) ; for it differs from that bird
by

by its size and instincts *. It seems that these occur also in Germany, and sometimes in France; another species, which is the Rough-footed Falcon with a white head, and which Frisch improperly calls *Vulture*. "This *Vulture* is completely clothed with feathers on the feet, in which circumstance it differs from all the diurnal rapacious birds that have a hooked bill. The Rock-eagle is furnished with similar feathers, but they only reach half-way to the feet. The nocturnal birds of prey, such as the owls, are indeed covered to the nails; yet this is rather a sort of down. This *Vulture* chases every kind of prey, though it never grovels among dead carcases." It feeds not upon carrion, because it is not a *Vulture* but a *Falcon*; and some of our naturalists have considered it as only a variety of the common species in France. It bears indeed a close resemblance, and differs chiefly by the whiteness of its head; but the character, that its feet are covered with feathers to the nails, seems to be specific, or at least to indicate a constant independent variety.

A second variety is the White Falcon, which occurs in Russia, and perhaps in other countries of the north. Some of this sort are of an uniform white, except at the ends of the great fea-

* This remark of Buffon's seems to be groundless. The German word *Habicht* is generic, and signifies any kind of Hawk. It is probably the same with the Saxon *Hafoc*, from which the English term *Hawk* is derived. The Welsh appellation *Hæbeg* is still more analogous in regard to sound. T.

thers of the wings, which are blackish ; others are also entirely white, except a few brown spots on the back and wings, and a few brown stripes on the tail *. Since this Falcon differs from the common kind in nothing but the whiteness of its plumage, we may consider it as merely a variety occasioned by the general influence of extreme cold. Yet in Iceland there are Falcons which have the same colour with ours, and are only somewhat larger, and have their wings and tail longer : these then ought not to be separated from the common species. The same remark may be made in regard to the *Genteel Falcon*, which most naturalists have stated as different ; in fact, the epithet *Genteel* † is applied when the bird is high bred, and of an elegant shape. Accordingly the old writers on falconry reckoned only two kinds of Falcons ; the *Genteel Falcon*, which is bred in our climates, and the *Pilgrim* or *Peregrine Falcon*, which is of foreign extraction ; and they regarded all the others as varieties of either of these. Some Falcons indeed from foreign countries pay us transient visits ; they appear mostly on the southern shores, and are caught at Malta ; they are for that reason called the *Passenger Falcons*, and are much blacker than the common kind. It would appear that this Black Falcon enters into Germany as well as France ; for it is the same with the *Brown Falcon* of Frisch. It even penetrates to

* Brisson.

† Gentle, in old English.

more distant climates; and Edwards has figured and described it under the name of the *Black Falcon of Hudson's-bay*.

To the same species we may also refer the Falcon of Tunis or Carthage, mentioned by Belon, "which," he says, "is rather smaller than the Pilgrim Falcon, its head thicker and rounder, and in its bulk and plumage like the Lanner." The Tartary Falcon ought perhaps to have the same arrangement; which is on the contrary somewhat larger than the Pilgrim Falcon, and is represented by Belon to differ in another circumstance, that the upper part of its wings is rusty, and its toes longer.

To give a condensed view of the facts which we have considered in detail: 1. There is in France only one species of Falcon well known, and which constructs its aerie in the mountainous provinces: the same is found also in Germany, Poland, Sweden, and as far as Iceland, to the north; and in Italy*, Spain, the islands in the Mediterranean, and perhaps Egypt†, to the south. 2. The White Falcon is merely a variety of the same species, produced by the influence of a northern climate. 3. The Genteel Falcon is of the same species with the common kind‡. 4. The Pilgrim or Passenger Falcon is of

* Aldrovandus.

† Prosper Alpinus.

‡ John of Franchieres, who is one of our oldest writers on falconry, and perhaps the best, reckons only seven species of Falcons; viz. the Genteel Falcon, the Peregrine Falcon, the Tartarian Fal-

of a different species, and perhaps includes some varieties ; such as the Barbary Falcon, the Tunis Falcon, &c.

Whatever then the statement of our nomenclators may be, there are only two kinds of Falcons in Europe, the one native and the other to be regarded as foreign. If we survey the numerous catalogue which Brisson has given, we shall find, 1. That his Sorrel Falcon is only the young of the common species : 2. That his Haggard Falcon is an old one of the same : 3. That his Falcon with a white head and rough feet, is a permanent variety of the same kind : 4. That his White Falcon comprehends two, perhaps three, different species of birds ; the first and third of which may derive their colour from the general influence of the arctic climates, but the second, which Brisson borrows from Frisch, is undoubtedly not a Falcon, and is only a bird of prey common in France, and named the *Harpy* : 5. That the Black Falcon is the true Pilgrim or Passenger Falcon, which may be regarded as foreign : 6. That the Spotted Falcon

con, the Jer-falcon, the Sacre, the Lanner, and the Tunisian Falcon. If we omit the Jer-falcon, the Sacre, and the Lanner, which are not Falcons, there remain only the Genteel Falcon and the Peregrine Falcon, of which the Falcons of Tartary and Tunis are two varieties. This author knew only one species of Falcon that was a native of France, which he calls the *Genteel Falcon* ; and this circumstance confirms what I have before said, that the Genteel and Common Falcons are really the same species.

is only the young of the same: 7. That the Brown Falcon ought rather to be reckoned a Moor Buzzard: Frisch is the only one who has given a figure of it, and he observes that it sometimes seizes wild pigeons in its flight; that it soars high; that it is difficult to shoot, and yet that it watches the aquatic birds near pools and marshes:—these circumstances combined would shew that it is only a variety of the Moor Buzzards, though its tail is not so long as theirs: 8. That his Red Falcon is only a variety of the Common Falcon, which, Belon and the old writers on falconry say, frequents the fenny tracts: 9. That his Red Indian Falcon is a foreign bird, of which we shall afterwards treat: 10. That his Italian Falcon, the account of which he borrows from Johnston, may be regarded as a variety of the common species of Falcon inhabiting the Alps: 11. That his Iceland Falcon is, as we have already remarked, another variety of the Common Falcon, and only somewhat larger: 12. That the Sacre is not a variety of the Falcon, but a different species, which must be treated of separately: 13. That his Genteel Falcon is really the Common Falcon, only described at a different season of moulting: 14. That Brisson's Pilgrim Falcon is the same, only aged: 15. That the Barbary Falcon is but a variety of the Foreign or Passenger Falcon: 16. And that so is the Tartary Falcon: 17. That the Collared Falcon is a bird of a different genus, which we have

termed *Soubuse* (Ring tail) : 18. That the Rock Falcon is not a Falcon, but is most related to the Hobby and Kestrel, and should therefore be considered apart : 19. That the Mountain Falcon is only a variety of the Rock Falcon : 20. That the Cinereous Rock Falcon is only a variety of the common species of Falcon : 21. That the Hudson's Bay Falcon is of a different species from the European : 22. That the Stellated Falcon is of a different genus : 23. That the Crested Falcon of India, the Falcon of the Antilles, the Fisher Falcon of the Antilles, and the Fisher Falcon of Carolina, are all foreign birds, of which we shall treat in the sequel.

Thus the Falcons are reduced to two species ; the Common or Genteel Falcon, and the Passenger or Pilgrim Falcon.—Let us now consult our old writers on falconry in regard to the difference of their instincts, and in the proper mode of education. The Genteel Falcon drops its feathers in March, and even earlier ; the Pilgrim Falcon does not moult until August. It is broader over the shoulders, its eyes are larger and deeper sunk, its bill thicker, its legs longer and better set than in the Genteel Falcon* : those caught in the nest are called *Ninny Falcons* (*Faucons-niais*) ; when taken too young, they are often noisy and difficult to train ; they ought not therefore to be disturbed till they are

* Artelouche's Falconry, printed along with the treatises of Fouilloux, Franchieres, and Tardif. Paris 1614.

consider-

considerably grown; and if they are to be removed from the nest, they must not be handled, but put into another nest as like the original one as possible, and fed with bears flesh, which is common in the mountains where these birds are found, or instead of that, they may be nourished with the flesh of chickens: without these precautions, their wings do not grow*, and their legs are easily broken or dislocated. The Sorrel Falcons, which are the young ones, and which have been caught in September, October, and November, are the best, and the easiest bred: those which are caught later, in winter or in the following spring, and consequently are nine or ten months old, have tasted too much of freedom to submit patiently to captivity, and their fidelity or obedience can never be relied on; they often desert their master when he least expects it. The Pilgrim Falcons are caught in their passage every year in September on the islands in the sea, and the high beaches by the shore. They are naturally quick and docile, and very easy to train; they may be flown all May and June; for they are late in moulting; but when it begins, they are soon stripped of their plumage. The Pilgrim Falcons are caught not only on the coasts of Barbary, but in all the islands of the Mediterranean, and particularly

* Catalogue of all the birds of prey employed in falconry, contained in the preceding collection.

that of Candia, which formerly furnished our best Falcons.

The art of falconry does not belong to Natural History ; we shall not therefore enter into details, but refer to the *Encyclopedie* for information on that subject. “ A good Falcon,” says Le Roi, author of the article of *falconry*, “ ought to
“ have a round head, a short thick bill, a very
“ long neck, sinewy breast, broad long thighs,
“ short legs, broad feet, slender toes, that are
“ lengthened and sinewy at the joints, strong
“ incurvated nails, long wings : the marks of
“ strength and courage are the same in the
“ Jer-falcon and the Tiercel, which is the male
“ in all the rapacious birds, and which is so
“ called, because it is one third less than the
“ female. A more certain indication of the
“ goodness of the bird, is its riding (*chevaucher*)
“ against the wind ; that is, bristling against it,
“ and sitting firm on the hand when exposed to
“ it. The plumage of a Falcon should be brown
“ and of an uniform colour : the proper cast of
“ the sole is sea-green. Those whose sole is
“ yellow, and whose plumage is spotted, are
“ less esteemed ; the black ones are prized : but
“ whatever be their plumage, the boldest are
“ the best. . . . Some Falcons are lazy and cowardly ; others are of so fiery a temper, that
“ they can bear no restraint ; both these kinds
“ are to be rejected,” &c.

Forget,

Forget, director of falconry at Versailles, has been pleased to favour me with the following note :

“ There is no material difference between the
“ Falcons of different countries, except in the
“ size; those which come from the north are
“ commonly larger than those from the moun-
“ tains, from the Alps, and Pyrenees; the
“ latter are taken in the nest, the former are
“ caught in their passage in various regions;
“ they migrate in October and November, and
“ return in February and March. . . . The age
“ of Falcons is marked very precisely in the se-
“ cond year, that is, at the first moulting; but
“ afterwards it is much more difficult to dis-
“ tinguish it. It may however be discovered till
“ the third moulting, not only from the changes
“ of the colour of the plumage, but from the
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FOREIGN BIRDS, WHICH ARE RELATED TO THE JER-FALCON AND FALCONS.

I.

THE Iceland Falcon, which, as we have already said, is a variety of the common species, and differs only in being rather larger and stronger.

II.

The Black Falcon is a bird of passage at Malta, in France, and in Germany, which Frisch and Edwards have figured and described, and which appears to us of a different species from our Common Falcon. I may observe, that the account given by Edwards is accurate, but that Frisch had no foundation for asserting that this Falcon is undoubtedly the strongest of all the rapacious birds that are of an equal size, because its upper mandible terminates in a sort of sharp tooth; and that it has larger toes and nails than the other Falcons; for we found upon comparison, that in regard to the toes and nails, it differed nothing from other Falcons; and in most of these the upper mandible had a similar termination; so that the marks of distinction which Frisch assigns are false or nugatory.

The

The Spotted Falcon, of which Edwards gives a figure and description, and which he tells us came from the same country with the Black Falcon, that is, from Hudson's Bay, appears to be only the Sorrel Falcon, or the young of the same species ; it owes its colours therefore to the difference of age, and not to any absolute distinction of kind. We have been assured that most of the Black Falcons arrive from the south ; and yet we have seen one which was caught on the coast of North America, near the banks of Newfoundland. Edwards tells us, that it is found in the country about Hudson's Bay. We may therefore conclude that the species is widely scattered, and that it visits alike the warm, the temperate, and the cold climates.

We may observe, that in the bird which we saw, the feet were of a distinct blue, while in those figured by Frisch and Edwards, they are yellow ; yet there is no doubt but the birds are the same. We have noticed some Ospreys which had blue feet, and others which had them yellow ; this character is therefore not so constant as generally supposed. Indeed, like that of the plumage, it varies with the age, or with other circumstances.

III.

The bird which may be called the *Red Falcon of the East Indies* : Aldrovandus* describes

* *Falco rubens Indicus.* ALDROV.

it accurately, and nearly as follows:—In the female, which is a third larger than the male, the upper part of the head is broad, and almost flat: the colour of the head, neck, all the back and the upper part of the wings, is ash, verging on brown; the bill is very thick, though the hook is pretty small; the base of the bill is yellow, and the rest, as far as the hook, is cinereous; the pupil of the eyes is very black, the iris brown, the whole of the breast, the higher part of the upper surface of the wings, the belly, the rump, and the thighs, are orange inclined to red; above the breast and below the chin there is a long cinereous spot, and several small spots of the same colour on the breast; the tail is radiated with semicircular bars, alternately brown and ash-coloured; the legs and feet are yellow, and the nails black. In the male all the parts which are red have a richer colour; those which are cinereous have more brown; the bill is bluer and the feet more yellow. These Falcons, Aldrovandus says, were sent from India to the Grand Duke Ferdinand, who directed them to be delineated.—We may here observe, that Tardif*, Albert, and Crescent, have mentioned the Red Falcon as a species or variety known in Europe, and inhabiting flat and marshy countries: but this is not distinctly enough described for us to

* The Red Falcon is often found in flat situations, and in marshes; it is bold, but difficult to controul. TARDIF.

decide,

decide, whether it is the East Indian kind, which might visit Europe like the Passenger Falcon.

IV.

The bird mentioned by Willoughby under the name of *The cirrated Indian Falcon*, which is larger than the Common Falcon, and nearly of the size of the Gos-hawk; which has a crest divided at the extremity into two parts, that are pendent on the neck. It is black on all the upper parts of the head and body; but on the breast and belly, the uniformity of colour is interrupted by lines, which are alternately black and white; the feathers of the tail rayed with lines alternately black and cinereous; but the feet are feathered to the toes; the iris, the cere, and the feet, are yellow; the bill is of a blackish blue, and the nails are of a fine black.

In general it appears from the relations of travellers, that the genus of the Falcons is one of the most universally dispersed. We have already observed that it is found through the whole extent of Europe, in the islands of the Mediterranean, and on the shores of Barbary. Dr. Shaw, whose narrative I find to be almost always faithful and accurate, tells us, that in the kingdom of Tunis there are Falcons and Sparrow-hawks in abundance, and that they form one of the principal amusements of the Arabs, and of the people of easier circumstances.

They

They are still more common in the Mogul Empire *, and in Persia †, where it is said falconry

* “ In Mogul the Falcon is flown at does and antelopes.”
Voyage de Jean Ovington.

† The Persians are expert in training birds for the chase; and they generally instruct the Falcons to fly at all sorts of birds; and for this purpose they take cranes and other birds, and putting out their eyes, they set them at liberty, and immediately let loose the Falcon, which easily catches them. . . . There are also Falcons for the chase of antelopes: they are trained in the following manner: They make the Falcons constantly eat off the nose of stuffed antelopes, and suffer them to feed no where else. After the birds are thus bred, they carry them into the fields, and when they discover an antelope, they let loose two of them, one of which fastens on the face of the beast, and strikes it before with the feet. The antelope stops short, and endeavours to shake off the Falcon, which claps its wings to keep its hold, and thus retards the flight of the antelope. When after much struggling the Falcon is disengaged, another succeeds; and thus the antelope is continually harassed and detained, until the dogs have time to overtake it. These sports are the more pleasant as the country is flat and open, and little interrupted by wood.
Relation de Thevenot. . . . Voyage de Jean Ovington.

The way in which the Persians breed the Falcons to the chase of wild deer is, to skin one and stuff it with straw, and to fasten the flesh with which they feed Falcons always on the head of the stuffed animal, which is moved along on a four-wheeled vehicle in order to accustom the bird. . . . If the beast is large, they fly several birds at it, which tease it one after another. . . . They also use these birds in rivers and marshes, into which they enter like dogs to hunt for the game. . . . As all the military people are sportsmen, they usually carry at the pommel of the saddle a small tymbal of eight or nine inches in diameter, and by striking it they recal the bird. *Voyage de Chardin.*

Persia has also birds of prey; there are many Falcons, Sparrow-hawks, and Lanners, with which the royal venery is provided, amounting to more than eight hundred. Some are flown at the wild boar, the wild ass, and the antelope; others are intended against cranes, herons, geese, and partridges. A great part of these birds of sport are brought from Russia; but the largest and best come from the mountains which stretch towards the south from Schyras unto the Gulph of Persia. *Dampier's Voyage.*

is studied with greater attention than in any other part of the globe *. They occur also in Japan, where Kœmpfer says they are brought from the northern parts of the islands, and are kept rather for ostentation than utility. Kolben also makes mention of the Falcons at the Cape of Good Hope, and Bosman of those on the coast of Guinea †. In short, there is no part of the antient continent that is not stocked with Falcons; and as they can support cold, and fly with ease and rapidity, we need not be surprised to find them in the new world. Accordingly they have been discovered in Greenland ‡, in the mountainous tracts of North and South America ||, and even in the islands of the South Sea §.

* The Persians, who have much perseverance, take pleasure in training a crow in the same way as the Sparrow-hawk. *Dampier's Voyage.*

† On the coast of Guinea there is another bird which resembles much the Falcon, and which, though rather larger than a pigeon, is so bold and vigorous that it attacks and carries off the largest poultry. *William Bosman's Letters.*

‡ There are White and Grey Falcons in Greenland, where they are more numerous than in any other part of the world. Some of these birds were sent as great rarities on account of their excellence to the kings of Denmark, who made presents of them to other kings and princes their friends or allies, because falconry is not practised in Denmark, or in other parts of the north. *Recueil des Voyages du Nord.*

|| Many Falcons of different species have been sent from Mexico and Peru to the grandees of Spain, as they are highly valued. There are also herons and eagles of various kinds; and no doubt these birds and others similar could more easily migrate into those countries than the lions and tigers. *D'Acosta's Nat. Hist. of the West Indies.*

N. B. The bird which the Mexicans call *Hotli*, mentioned by Fernandez, appears to be the same with the Black Falcon, of which we have spoken.

§ *Hist. des Navig. aux Terres Australes.*

The

V.

The bird called *Tamas* by the Negroes of Senegal, and which was presented to us by Adanson under the name of *Fisher-Falcon*. It resembles the Common Falcon almost entirely in the colours of its plumage; it is, however, rather smaller, and has on its head long erect feathers, which are reflected back, and form a sort of crest that distinguishes it from all others of the same genus. Its bill is yellow, not so much curved, and thicker than that of the Common Falcon, and its mandibles have considerable indentations. Its instinct is also different; for it fishes rather than hunts. I imagine that this is the species which Dampier mentions by the name of *Fisher-Falcon*. "It resembles," he says, "in colour and figure our smaller sorts of
 "Falcons; and its bill and talons are shaped
 "the same. It perches upon the dry branches
 "and trunks of trees that grow by the sides of
 "creeks, rivers, or near the sea-shore. When
 "they observe little fish near them, they skim
 "along the surface of the water, seize them
 "with their talons, and hurry them into the
 "air without wetting their wings." He adds
 "That they do not swallow the fish entire, like
 "other birds that subsist on that prey, but tear
 "it with their bill, and eat it by morsels." [A]

[A] This is the *Falco Piscator* of Gmelin and Latham. The specific character:—"It is half-crested, the head ferruginous, the body cinereous, the quills have a dusky margin, the under side of the body pale yellowish, with dusky longitudinal spots."

BOL

N^o 17.



THE HOBBY.

The H O B B Y.

Le Hobreau, Buff.

Falco Subbuteo, Linn. Ray, Will. Aldr. &c.

Falco Barletta, Ger. Orn.

Dendrofalco, Briss. Frisch.

Baum-Falck, Gunth. Nest.

THE Hobby is much smaller than the Falcon, and of a different disposition. The fiery courage of the Falcon prompts him to attack birds that are far superior in size ; but the cautious Hobby, unless it is trained to the chase, never aspires beyond the prey of larks and quails. The want of boldness, however, is compensated by its industry. No sooner does it espy the sportsman and his dog than it hovers in the train, and endeavours to catch the small birds that are put up before them ; and what escapes the fowling-piece eludes not the Hobby. It seems not intimidated by the noise of fire-arms, and ignorant of their fatal effects ; for it continues to keep close to the person who shoots. It frequents the champaign country near woods, especially where the larks are numerous. It commits great havoc among them, and these are well apprized of their fatal enemy ; they are alarmed when they descry it, and instantly dive into the bushes, or seek concealment in the herbage.

herbage. This is the only way in which the lark can effect its escape ; for though it soars to a great height, the Hobby can still outstrip it. The Hobby lodges and breeds in the forests, and perches upon the tallest trees. In some of our provinces the name of *Hobby* is applied to the petty barons who tyrannize over their peasants, and more particularly to gentlemen of the sport who chuse to hunt on their neighbours' grounds without obtaining leave, and who hunt less for pleasure than for profit*.

We may observe, that in this species the plumage is blacker during the first year than in the succeeding ones. In France there is a variety of the Hobby, which is represented Pl. Enl. N^o 431. The difference consists in this; that the throat, the lower part of the neck, the breast, a part of the belly, and the great feathers of the wings, are cinereous and without spots ; whereas, in the Common Hobby, the throat and the lower part of the neck are white, the breast and the upper part of the belly are white also, with longitudinal brown spots, and the great feathers of the wings are almost blackish. The tail, which in the common species is whitish below, dashed with brown, is in the variety entirely brown. But notwithstanding such

* This application of the name *Hobby* to country gentlemen might also be owing to another circumstance. Those who were not rich enough to keep Falcons were contented with breeding Hobbies.

differences, these two birds are still of the same kind ; for their size and port are the same, and they are both natives of France ; and besides, they have in common a singular character, that the lower part of the belly and the thighs are covered with feathers of a bright rust-colour, and which is strongly contrasted with the rest of the plumage. It is even not unlikely that all this diversity of colours arises from the age or the season of moulting.—We have only to add, that the Hobby is carried on the hand without any cover or hood like the Merlin, the Sparrow-hawk, and Gos-hawk, and that it was formerly much used in hunting partridges and quails. [A]

[A] The specific character of the Hobby, *Falco Subbuteo* :—
 “ The cere and feet yellow, the back dusky, the nape of the
 “ neck white, the abdomen pale with dusky oblong spots, the
 “ under side of the rump and the thighs rufous.”

The male weighs seven ounces ; the length twelve inches ; the alar extent two feet seven inches. It inhabits Europe and Siberia. In summer it is frequent in England, where it breeds, and migrates in October.

It has been mentioned in the text, that the larks dread the sight of the Hobby. They remain fixed to the ground through fear, which affords the fowler an opportunity of spreading his net over them. This was formerly practised, and termed *daring* the larks.

The German name *Baum-Falck* signifies Tree-Falcon, which Frisch has translated into a compound Greek and Latin term, *Dendrofalco*.

The KESTREL*.

La Cresserelle, Buff.

Falco Tinnunculus, Linn. Ray, Will. Fris. &c.

Cenchrus, Klein.

Falco Aureus, Id.

Bothel Geyer, Gunth.

Kirch Falck, Brunn.

Windwachel, *Bittelweyer*, *Wannenweyer*, Kram.

Gheppio Acertello, *Gavinello*, Zinn.

Stannel, *Stonegall*, *Windhover*, Alb. Sloan, &c.

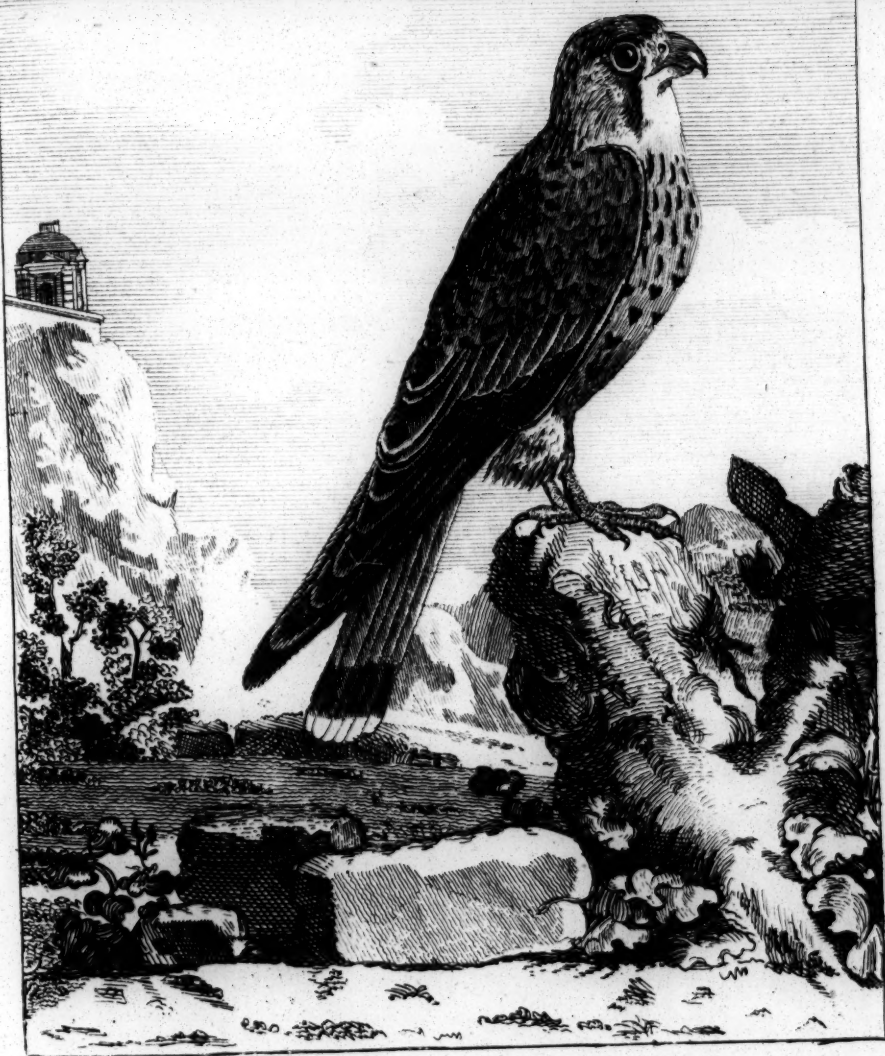
THE Kestrel is one of the most common of the birds of prey in France, and especially in Burgundy. There is scarcely an old castle or deserted tower, but is inhabited by it; and in the mornings and evenings particularly it is seen flying about the ruins. It is still oftener heard; it constantly repeats, when on the wing, its quick *pli, pli, pli*, or *pri, pri, pri*, and terrifies all the small birds, on which it shoots like an arrow,

* The Greek name *Κερχεῖς*, which signifies *millet*, is applied to the Kestrel, because, as Gesner conjectures, the plumage of this bird is sprinkled with black spots like millet. The Latin appellation *Tinnunculus* from *Tinnitus*, probably alludes to its tinkling notes. The former, *Bothel* Geyer, means Reddish Vulture; *Kirch Falck*, Church Falcon; *Windwachel*, Wind-bird; *Rittelweyer*, Rider-kite; *Wannenweyer*, Fanner-kite;—the three last refer to the fanning motion made by this bird.

In Italian it is also called *Tutinculo*, *Tintarello*, *Garinello*, *Canibello*. In Spanish, *Cernicalo*, or *Zernicalo*. It has been named in English, the *Stonegall*, or *Stannel*, and the *Windhover*.

and

N^o 18.



THE KESTREL FALCON .

B  L

and seizes them with its talons ; or if it misses the first dart, it pursues them without fear even to the houses : I have known my servants more than once catch the Kestrel and its little fugitive, by opening the window or the hall-door, which was more than one hundred fathoms from the old walls where the pursuit commenced. After it has secured its prey, it kills it, and plucks the feathers neatly ; but it is not at such pains with mice, for it swallows the small ones entire, and tears the large ones into pieces. The soft parts of the carcase are digested in the stomach of the bird, but the skin is rolled into a ball, and rejected at the bill. Its excrements are almost liquid, and whitish ; and the rolls that are thrown out are found, by soaking in warm water, to be the entire skins of the mice. The Owls, Buzzards, and perhaps many other kinds of rapacious birds, reject also similar balls, which, besides the skin, contain often the hardest portions of the bones. The same is the case with Fishers ; the bones and scales of the fishes are collected in the stomach, and thrown out at the bill.

The Kestrel is a pretty bird ; its sight is acute, its flight easy and well supported : it has perseverance and courage, and resembles in its instinct the noble and generous birds ; and perhaps it might be trained, like the Merlins, for falconry. The female is larger than the male : its head is rust-coloured, the upper side of its

back, wings, and tail marked with cross bars of brown, and all the feathers of the tail are of a rusty brown variously intense; but in the male, the head and tail are grey, and the upper parts of the back and wings are of a vinous rust colour, sprinkled with a few small black spots.

We cannot omit to observe, that some of our modern nomenclators have termed the female Kestrel the *Lark-hawk* (*epervier des alouettes*), and have reckoned it a distinct species from the Kestrel.

Though this bird habitually frequents old buildings, it breeds seldomer in these than in the woods: and when it deposits its eggs neither in the holes of walls nor in the cavities of trees, it constructs a very flimsy sort of nest, composed of sticks and roots, pretty much like that of the jays, upon the tallest trees of the forest; sometimes it occupies the nests deserted by the crows. It lays four eggs, but oftener five, and sometimes six or seven; of which the two ends have a reddish or yellowish tinge similar to the plumage. Its young are at first covered with a white down, and fed with insects; they are afterwards supplied with plenty of field mice, which it descries from aloft, as it hovers or wheels slowly round, and on which it instantly darts. Sometimes it carries off a red partridge, which is much heavier than itself, and often catches pigeons that stray from the flock. But, besides field mice and reptiles, its ordinary prey are sparrows, chaffinches, and
other

other small birds. As it is more prolific than most of the rapacious tribe, the species is more numerous and wider diffused; it is found through the whole extent of Europe, from Sweden to Italy and Spain, and it occurs even in the more temperate parts of North America. Many Kestrels continue the whole year in France; but I have observed that they are much less frequent in winter than in summer, which induces me to think, that several migrate into other countries to pass the inclement season.

I have raised numbers of these birds in large volaries: they are, as I have already observed, of a very fine white during the first month; after which the feathers on the back become rusty or brown in a few days: they are hardy, and easy to feed; they eat raw flesh when it is offered to them, when they are a fortnight or three weeks old. They soon become acquainted with the person who takes care of them, and grow so tame as never to give offence: they early acquire their cry, and repeat the same in confinement as in the state of liberty.—I have often known them escape, and return of their own accord after a day or two's absence, probably compelled by hunger.

I am acquainted with no varieties of this species, except a few, in which the head and the two feathers of the middle of the tail are gray, such as figured by Frisch; but Salerne mentions a yellow Kestrel, which is found in Sologne,

and of which the eggs are of the same yellow hue. "This Kestrel," says he, "is rare, and fights nobly with the White John, which, though stronger, is often forced to yield the contest; they have been seen," he adds, "to hook together in the air, and fall to the ground like a clod or a stone." This appears to me very improbable; for not only is the White John much superior to the Kestrel in strength, but its movements are performed so differently, that the birds could scarcely ever meet. [A]

[A] The specific character of the Kestrel, *Falco Tinnunculus*, LINN. is, "that the cere and feet are yellowish; the back rufous, with black points; the breast marked with dusky streaks; the tail rounded."

It was formerly trained in Great Britain, to catch small birds and young partridges, but laid aside when falconry fell into disuse.

It is frequent in the deserts of Tartary and Siberia, and breeds in the small trees scattered through the open country. It appears in Sweden early in the spring, and departs in September. It is uncertain whether it penetrates farther north.

The STONE-FALCON.

Le Rochier, Buff.

Falco Lithofalco, Gmel. Briss. Will. &c.

THIS bird is not so large as the Kestrel, and appears to me very like the Merlin, which is employed in falconry. It lodges and breeds, we are told, in rocks. Frisch is the only naturalist preceding us, who has given a distinct description of it; and, upon a comparison of his figure with those which we have given of the Kestrel and Merlin, we are much inclined to believe, that the Stone-falcon and the species of the Merlin used in falconry are the same, or at least closely related:—but we shall consider this more particularly in the following article. [A]

[A] The Linnæan character of the Stone-falcon: “The cere is yellowish, the upper side of the body cinereous, the under-side rufous, with dusky longitudinal spots, the tail cinereous, blackish near the end, the tip white.”—It is about the size of a Kestrel, and twelve inches and one-fourth long.

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The MERLIN*.

L'Emerillon, Buff.*Falco Æsalon*, Gmel. Ray. Will. Klein. Briss.*Cenobris*, Fris.*Accipiter Smerillus*, Ger. Orn.

THE subject of this article is not the Merlin of the naturalists, but that of the falconers, which has not been well described by any of our nomenclators. If we except the Butcher-bird, it is the smallest of all the rapacious tribe, not exceeding the size of a large thrush. Still we must reckon it a generous kind, and the nearest approaching the species of the Falcon: it has the same plumage †, the same shape and attitude, the same disposition and docility, and not inferior in ardour and courage. It can be successfully flown against larks, quails, and even partridges, which it seizes and carries off, though they are much heavier than itself; often

* The Latin name *æsalon*, is the same with the Greek *αισαλον*, which is of uncertain derivation. The modern names seem to allude to its preying upon blackbirds, *merulæ*: *Smerlo* or *Smerglia* in Italian; *Myrle* or *Smyrlin* in German; and *Merlin* in English. In some provinces of France, it is called the *Passetier*, or *Sparrow-catcher*.

† It actually resembles the Sorrel-Falcon in the shades and distribution of its colours.

N^o 19.



THE MERLIN.

B  L

it kills them with one blow, striking on the stomach, head, or the neck.

This small bird, which resembles the Common-falcon so much in its disposition and courage*, is however shaped more like the Hobby, and still more like the Stone-falcon: but its wings are much shorter than those of the Hobby, and reach not near the end of the tail; while, in the Hobby, they project somewhat beyond it. We have hinted in the preceding article, that its relation to the Stone-falcon is so clear, in the thickness and length of the body, in the shape of the bill, feet, and talons, in the colours of the plumage, the distribution of the spots, &c. that there is reason to suppose that the Stone-falcon is a variety of the Merlin, or at least that they are two species so nearly connected, that they ought to suspend any decision respecting their diversity.—The Merlin differs from the Falcons, and indeed all the rapacious tribe, by a character which approximates it to the common class of birds; viz. the male and female are of the same size. The great inequality of size therefore observed between the sexes in birds of prey, cannot be attributed to the mode of life, or to any peculiar habit: it would seem at first to depend upon the magnitude; for, in the Butcher-birds, which are still smaller than the Merlins, the males and

* Many others have mentioned the analogy between the Merlin and the Falcon; they have termed it the *Little Falcon*, *Falco parvus Merlinus*. SCHWENCK. and FALCONELLUS. RZACHYNSKI.

females

females are of the same size; while, in the Eagles, the Vultures, the Jer-falcons, the Goshawks, the Falcons, and the Sparrow-hawks, the female is a third larger than the male. Upon consulting the accounts of the dissection of birds, I find that most females have a large double *cæcum*, while the males have only one *cæcum*, and sometimes none at all: this difference of the internal structure, which is much more frequent in the females than in the males, is perhaps the true physical cause of this exuberant growth. I shall leave it to anatomists to ascertain the fact more accurately.

The Merlin flies low, though with great celerity and ease: it frequents woods and bushes to seize the small birds, and hunts alone unassisted by its female: it breeds in the mountain forests, and lays five or six eggs.

But, besides the one we have just described, there is another kind of Merlin better known by naturalists, which Frisch has figured and Brisson described from nature. This differs considerably from the former, and seems to resemble more the Kestrel; at least, if we may judge from the figure, not being able to procure a specimen. But another circumstance seems to countenance this opinion: the American birds, which we received by the name of the *Cayenne Merlin* (Pl. Enl. N° 444), and the *St. Domingo Merlin* (Pl. Enl. N° 465), appear to be varieties, or perhaps the male and female, of the same species,

and, when viewed attentively, discover more resemblance to the Kestrel than to the Merlin of the falconers. This would imply, that the Kestrel has migrated into the new continent; and accordingly, as a further presumption, Linnæus ranks it among the natives of Sweden, while he omits the Merlin. We may therefore distinguish it by a particular name, and that given it in the Antilles may not be improper. "The Merlin," says Father Tertre, "which our settlers call *gry-gry*, from the cries which it makes in flying, "is another small bird of prey that is scarcely "larger than a thrush: all the feathers on the "upper side of the back and wings are rusty, "spotted with black; the under side of the "belly is white, speckled with ermine: it is "armed with a bill and talons proportioned to "its size: it preys only on small lizards and "grass-hoppers, and sometimes on young chickens newly hatched: I have frequently rescued "them; the hen makes a stout defence, and "drives off its enemy.—The settlers eat it, but "it is not very fat."

The resemblance between the cry * of this Merlin of Father Tertre and that of the Kestrel, is another mark of the proximity of these species; and it appears that we may conclude with tolerable certainty, that all the birds mentioned by

* The cry of the Kestrel is *pri, pri*, which is much like *gry-gry*, the name of the bird of the Antilles.

naturalists under the names of *Merlin of Europe*, *Carolina* or *Cayenne Merlin*, and the *St. Domingo Merlin*, or that *of the Antilles*, form only one variety in the species of the Kestrel, and which we may distinguish from the common Kestrel by the appellation of *gry-gry*. [A]

[A] The specific character of the Common Merlin, *Falco Æsalon* of Linnæus: "The cere and feet are yellow, the head
" ferruginous, the upper side of the body ash-cœrulean, with
" ferruginous spots and streaks, the underside yellowish white,
" with oblong spots." Gmelin and Latham regard the falconers' Merlin, and that of the Antilles, as simple varieties.

The SHRIKES.

*Les Pie-Grieches**, Buff.*(Including the genus Lanius in the Linnæan system.)*

THOUGH these birds are small and of a delicate make, yet their courage, their appetite for carnage, and their large hooked bill, entitle them to be ranked with the boldest and the most sanguinary of the rapacious tribe: it is astonishing with what intrepidity the little Shrikes combat the Magpies, the Crows, and the Kestrels, which are all much larger and stronger than themselves. Not only do they act on the defensive, but they sometimes commence the attack; and they are ever successful in the rencounter, especially when the parents unite to drive the birds of prey to a distance from their nest. If they fly near their retreats, the Shrikes rush upon them with loud cries, inflict terrible wounds, and force them to retire with little inclination to repeat the visit. The more generous of the rapacious tribe regard them with respect, and the Kites, the Buzzards, and the Crows seem rather intimidated at their appearance. Nothing in nature can give a better idea of the privileges annexed to courage,

* i. e. The Speckled Magpie.

than

than to see these little birds, scarcely equal in size to the larks, flying with security among the Sparrow-hawks, the Falcons, and other tyrants of the air, and hunting in their domains without apprehending danger: for, though they commonly live upon insects, they prefer flesh; they chase all the small birds upon wing, and they sometimes catch partridges and young hares. Thrushes, black-birds, and other birds caught in the noose, are their common prey; they fix on them with their talons, split the skull with their bill, squeeze or cut the neck, and then pluck off the feathers, and feed at their leisure, and transport the mangled fragments to their nests.

The genus of these birds consists of a vast number of species; but we may reduce those of our climate to three principal ones: these are, the Great Cinereous Shrike, the Woodchat, and the Red-backed Shrike. Each of these three species requires a separate description, and includes some varieties which we shall notice.

BOL

N^o 20.



THE GREAT CINEREOUS SHRIKE

The Great CINEREOUS SHRIKE.

La Pie-Grièche Grise *, Buff.

Lanius Excubitor, Linn. Brun. Kram.

Falco Congener, Klein.

Lanius, seu *Collurio Cinereus Major*, Ray & Will. Briss. & Fris.

Ferlotta Berettina, Zinn.

Castrica Palombina, Olin.

Il Falconetti, Cett.

The Greater Butcher bird, or *Mattagefs*; in the north of England *Wierangle*, Will.

The Night Jar, Mort. North.

The Butcher bird, *Murdering bird*, or *Shreek* †, Mer. Pinax.

THIS bird is very common in France, where it continues during the whole year. It inhabits the woods and mountains in summer, and resorts to the plains and near our dwellings in winter. It breeds among the hills, either on the ground or on the loftiest trees. Its nest is composed of white moss interwoven with long grass, and well lined with wool, and is commonly fastened to the triple cleft of a branch. The female, which differs not from the male in point of size, and is only distinguished by the lighter cast of its plumage, lays generally five or six eggs,

* i. e. The Grey Speckled Magpie.

† In modern Greek it is called *Collurio*; the Latin name *Lanius* signifies a *butcher*. In Italian it is termed *Gaza Sperviera*, *Falconello*, *Cresso*, *Castrica*, *Verla*, *Stragazzina*, *Ragazzoia*: in German, *Thorn-Kretzer*, *Warkengel*, *Nun-Maerder*: in Polish, *Zierzba*, *Srokos*, *Wiekſzy*.

some-

sometimes seven or even eight, as large as those of a thrush. She feeds her young at first with caterpillars and other insects, but soon instructs them to eat bits of flesh, which her mate brings with wonderful care and attention. Very different from the other birds of prey, which expel their helpless brood, the Shrike treats its infant young with the most tender affection, and even after they are grown still retains its attachment. Towards autumn the offspring assist the parents in providing for the common support; and the members of the family continue during winter to live in harmony, till the genial influence of spring awakens the appetite for propagation, and forms other unions.

The Shrikes may be distinguished both by their flying in small troops after the breeding season, and by their zig-zag course, which waves not sideways, but bends with sudden flexures upwards and downwards. They are also discovered by their shrill cry *trōuī, trōuī*, which can be heard at a great distance, and which they incessantly repeat when perched on the summits of trees.

In this first species there is a variety in the size, and another in the colour. We have received for the King's cabinet a Shrike from Italy, which differs from the common kind only by a rusty tinge on the breast and belly (Pl. Enl. N^o 32, Fig. 1.). Some are found entirely white on the

Alps,

Alps*, which, as well as those with a rufous tinge on the belly, are of the same size with the Great Cinereous Shrike, and it does not exceed the red-wing †. But others are found in Germany and Switzerland which are somewhat larger, and which several naturalists have reckoned a different species; yet in other respects these birds are similar, and their growth might be affected by the plenty or scarcity of subsistence which the country affords. And if the Great Cinereous Shrike varies somewhat in Europe, we may expect it to vary still more in remote climates. That of Louisiana (Fig. 2, N° 476, Pl. Enl.) is the same with the common kind, differing less than the Italian bird; only it is rather smaller, and of a deeper cast on the upper parts of the body. Those from the Cape of Good Hope ‡ (Fig. 1, N° 477), and Senegal (Fig.

* *Lanius Albus*, ALDROV. This is the second variety of Linnaeus:—"Its body white; its feet yellowish; the bill and nails blackish."

† *Lanius Major*, GESNER; and the *Groesferer Neuntoeder* of FRISCH. It is the third variety of *Lanius Excubitor*, LINN. It is larger and thicker than the former; the scapular feathers, and the small coverts of the upper side of the wing, are rusty-coloured: But these differences are too minute to constitute a separate species.

‡ To this species we must also refer the East-India bird which the English that visit the coasts of Bengal term the *Dial-bird*, and which is described by Albin with figures of the cock and hen. "This Shrike is very large, he says, and very similar to the Great Cinereous Shrike; its bill black, the corners of the mouth yellow, the iris of the same colour, the legs and feet brown. In the male, the head, the neck, the back, the rump, and the coverts of the upper side of the tail, the scapular feathers, the throat, and the breast,

(Fig. 1. N^o 297), and the Blue Shrike from Madagascar (Fig. 1, N^o 298), appear to be three contiguous varieties, and equally related to the Great Cinereous Shrike of Europe. The only differences are, that in the one from the Cape, the upper parts of the body are of a blackish brown; in that from Senegal, they are of a lighter brown; and in that from Madagascar, they are of a fine blue: but such differences of plumage may still have place in the same species, for we shall have frequent occasion to point out as great changes produced in our own climates, and the variations ought to be still greater in distant regions. The Shrike from Louisiana resembles that of Italy; and the temperature of these countries are nearly alike. The others, from the Cape, Senegal, and Madagascar, bear less analogy; and the climates to which they belong are also more different.—The Shrike from Cayenne is variegated with long brown bars (Pl. Enl. N^o 297); but the size and other properties being the same, we have ranged it likewise with the common kind. [A]

breast, are black; the belly, the flanks, and the coverts of the under-side of the tail, white; all the feathers of the tail of an equal length, black above and white beneath. The female is distinguished from the male by its fainter colours."

[A] Specific character of the Great Cinereous Shrike, *Lanius Excubitor*, LINN. "The tail wedge-shaped, its lateral quills white; the back hoary; the wings black, with a white spot." Its length is ten inches, its breadth across the wings fourteen inches, and it weighs three ounces. It seizes small birds by the throat, and strangles

THE GREAT CINEREOUS SHRIKE. 243

strangles them; then spits them on some thorn, and tears them to pieces with its bill. Even when confined in a cage, it sticks its meat against the wires, and tears it in the same manner.—It is frequent in Russia, but seems not to have penetrated to Siberia. It inhabits the whole extent of North America. In Hudson's-bay it breeds in the woods distant from the coast. It makes its nest with dry grass, which it lines thick with feathers.

The WOODCHAT.

La Pie-Grièche Rouffe *, Buff.*Lanius Rutilus*, Lath.*Lanius Rufus*, Briss. and Gmel.*Lanius Pomeranus*, Mus. Carlsb.*Lanius Minor Cineraceus*, Ray, Klein, Fris.*Ampelis Dorso Griseo*, Faun. Suec. ed. 1. and Kram.*Buferola*, *Ferlotta Bianca*, Zinn.

THIS bird is rather smaller than the preceding, and may easily be distinguished by the tinge of its head, which is sometimes red, and commonly bright ferruginous ; its eyes also are whitish or yellowish, while in the Great Cinereous Shrike they are brown, and its bill and legs are blacker. Its instincts, however, are nearly the same ; both of them are bold and mischievous, yet they are evidently of different species ; for the Great Cinereous Shrike is a permanent settler, while the Woodchat quits the country in autumn, and returns not till spring. The family, which does not disperse after the young are fledged, departs alone in the beginning of September ; they flutter from tree to tree, and support not a continued flight even in their migrations. They reside during summer in the plains, and nestle on the bushy trees ; in

* i. e. The Rufous Speckled Magpie.

that season the Great Cinereous Shrike inhabits the forests, and seldom emerges from the retreat till after the departure of the Woodchat. The Woodchat is said to be the most palatable of all the Shrikes, or perhaps the only one that is fit to be eaten*.

The male and female are almost exactly of the same size, but differ so much in their colours as to appear of distinct species. I shall only add, that both the Woodchat and the Red-backed Shrike construct their nest very neatly, and employ the same materials as the Great Cinereous Shrike; the moss and wool are so well connected with small pliant roots, long fine grass, and the tender shoots of low shrubs, that the whole seems interwoven. It has generally five or six eggs, sometimes more; these are of a whitish ground, and either entirely or partly spotted with brown or fulvous. [A]

* Schwenckfeld.

[A] The Woodchat, *Lanius Rutilus* of LATHAM, is thus described:—"Its upper side consists of three colours, its under side is rufous-white; the whole of the scapular feathers, the quills of the tail from the base to the middle, and the iris of the lateral ones, white; and a black streak through the eyes." It includes the *Lanius Rufus* of Gmelin, which is the third variety of the *Lanius Collurio* of Linnæus, or the Red-backed Shrike; and also the *Lanius Pomeranus*, first described by Sparmann."

The RED-BACKED SHRIKE.

L'Ecorcheur, Buff.

Lanius-Collurio, Linn. Gmel. Briff. Brun. Kram, &c.

Lanius Minor Rufus, Ray and Will.

Lanius Æruginosus Major, Klein.

Ferlotta Rossa, Zinn.

The Lesser Butcher bird, called in Yorkshire *Flusker*, Will.

THE Red-backed Shrike is only a little smaller than the Woodchat; and its habits are similar. It departs with its family in September, and returns in the spring. It breeds in the trees or bushes in the open country, and not in the woods. It feeds its young commonly with insects, and preys upon the small birds. In short, the only material difference consists in the size, and in the distribution and shades of the colours, which seem to be invariably discriminated in both species: but the difference is still greater between the male and female in each species. We may therefore with propriety regard the Woodchat, the Red-backed Shrike, and the variegated Red-backed Shrike, as varieties of the same species. Some naturalists* have indeed reckoned the last a distinct species; but the comparison of the figures seems to prove that it is only the female of the Red-backed Shrike.

* *Collurionis parvi secundum genus*. ALDROV. *Colluria varius*.
BRISS.

These two species of Shrikes, with their varieties, breed in Sweden as well as in France. We may presume therefore that they will be found in the new continent; and we may reckon the foreign kinds as only varieties of the Woodchat produced by the influence of climate.

Nothing can shew better that birds migrate into warmer countries to pass the winter, than the Woodchat (N^o 477, Fig. 2, Pl. Enl.) sent by Adanson from Senegal, and which is precisely the same with the European Woodchat. There is another (N^o 279, Pl. Enl.) which we received from the same place, and which may be regarded as merely a variety, since the only difference is, that its head is black, and its tail rather longer, which is not material.

The same observation may be extended to what we have called the *Philippine Woodchat** (Pl. Enl. N^o 476, Fig. 1.), and also to the *Louisiana Shrike* (Pl. Enl. N^o 397), which, though brought from climates widely different, appear to be really the

* It would appear that this bird is the same with what Edwards has called the *Red or Rufous Crested Shrike*. "This bird, says he, is termed Charah in the country of Bengal, and differs from our Shrikes by its crest." But this difference is slight; for what Edwards takes for a crest is only the feathers bristled, as in the Jay when irritated. He confesses, that he only saw the dried specimen; and what evinces our position is, that the same naturalist gives a figure of the Black and White Shrike of Surinam in the first part of his Gleanings, where it is represented with a crest; yet we have that species in the King's cabinet, and it undoubtedly is not furnished with a crest. Edwards was therefore misled by some accidental derangement of the feathers; and we may still assert that the Bengal Shrike is only a variety of the Red-backed Shrike.

same bird, and only a variety of the Red-backed Shrike, whose female it resembles almost exactly. [A]

[A] Specific character of the Red-backed Shrike, *Lanius-Colurio*, LINN. "Its tail somewhat of a wedge-shape, the back grey, the four middle quills of the tail of an uniform colour, the bill lead-coloured." It is seven inches and a half long, its alar extent eleven inches; the male weighs two ounces, the female two ounces and two grains; it inhabits Europe, and is migratory, appearing in May, and returning in September or October,

FOREIGN BIRDS, RELATED TO THE GREAT CINEREOUS AND RED-BACKED SHRIKES.

I.

The FORK-TAILED SHRIKE*.

Le Fingah, Buff.

Lanius Cærulefcens, Linn.

Lanius Bengalenfis Cauda Bifurca, Briff. and Klein.

The Forked-tail Butcher-bird, Edw.

EDWARDS speaks of this bird in the following terms:—The shape of its bill, the whiskers at its base, and the strength of its legs, have induced me to range it with the Shrikes; though its tail is different, being forked, while that of the Shrike has the longest feathers in the middle. Its bill is strong, thick, and arched, nearly like that of a Sparrow-hawk, but longer in proportion to its thickness, less hooked, and with wide nostrils. The base of the upper mandible is beset with stiff hairs. . . . The whole of the head, neck, back, and the coverts of the wings, are of a shining black, with reflections of blue, purple, and green, varying according to its position. . . . The breast is of an ash-colour, dusky,

* The specific character :—"The tail forked, the body cœrulean black, the abdomen white."

and

and blackish. All the belly, the legs, and the coverts of the under side of the tail, are white; the legs, the feet, and the nails, are blackish brown.—I am at a loss, subjoins Edwards, whether I should class this bird with the Shrikes or the magpies; for it appears to be equally related to each of them; and I am even inclined to think that both constitute only one species.—This conformity seems to have been observed in France, where the name *pie* is applied equally to the Shrikes and magpies.

II.

The BENGAL SHRIKE*.

Rorge-Queue, Buff.

Lanius-Emeria, Linn. and Gmel.

Lanius Bengalenfis Fuscus, Briff.

The Indian Redstart, Edw.

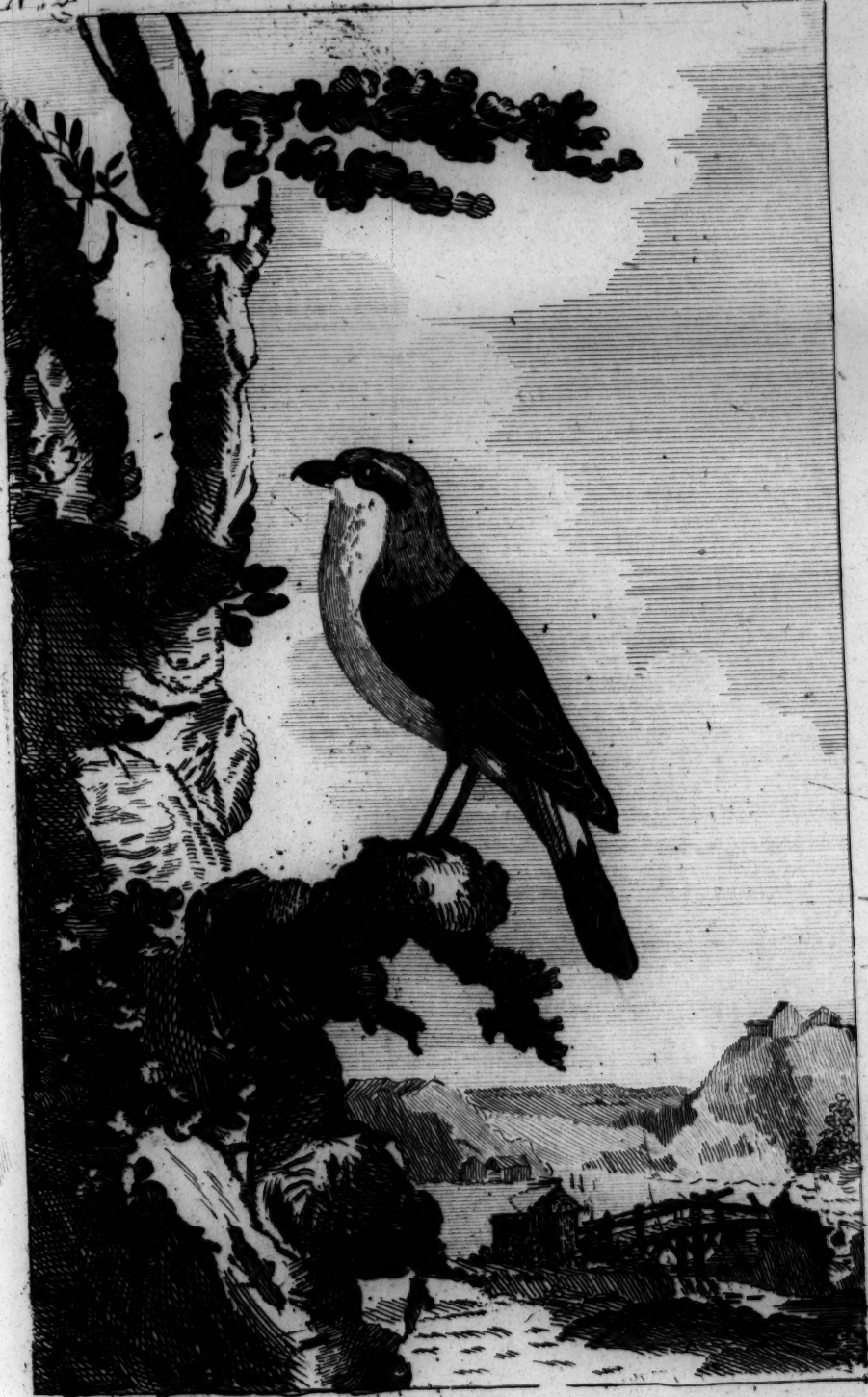
The Bengal Redstart, Alb.

This is also an East-India bird. It is described and figured by Albin. It is nearly of the same size as the Great Cinereous Shrike of Europe; its bill is cinereous brown; its iris whitish; the upper part, and the back of the head, black; below the eyes is a lively orange spot terminated with white; and on the tail four black spots, making a segment of a circle; the

* The specific character:—"It is grey, white beneath, the temples and rump red." It is five inches and a half long.

upper

N^o 21



THE RED BACKED SHRIKE .



upper part of the neck, the back, the rump, the superior coverts of the tail, the inferior coverts of the wings, and the scapular feathers, are brown ; the throat, the upper part of the neck, the breast, the higher part of the belly, and the inferior coverts of the tail, are red ; the tail is light brown ; the feet and nails are black.

III.

LANGARIEN and TCHA-CHERT.

The bird sent from Manilla under the name of *Langarien**, and the other from Madagascar under that of *Tcha-chert*†, have perhaps been improperly referred to the genus of Shrikes ; for their wings extend beyond the tail ; while, in the other species, they do not reach so far as the tail. But the one from Madagascar resembles much our Great Cinereous Shrike ; and, setting aside the difference of the length of the wings, we may consider it as the intermediate shade between that and the Manilla bird, to which however it is nearer related ; and as we know

* The *Langarien* is the *Lanius Leucorhynchus* of GMELIN, and the *White-billed Shrike* of LATHAM. Its specific character :—“ Blackish above, whitish below ; the bill, breast, abdomen, and rump, white.” It is seven inches long.

† The *Cha-Chert* is the *Lanius Viridis* of GMELIN, and the *Green Shrike* of LATHAM. Specific character :—“ The upper surface of the head, body, and wings, dull green ; the body white beneath, the tail black.” The length near six inches.

no other genus to which we could directly refer them, we shall follow the opinion of the rest of the naturalists, remarking at the same time the uncertainty of the determination.

IV.

The CAYENNE SHRIKE.

Becarde *, Buff.

Lanius Cayanus †, Linn. Gmel. and Briss.

Two of these birds were sent ; the one under the name of the Grey Shrike, the other under that of the Spotted Shrike. Their bill is large and red ; their head is entirely black ; and their size exceeds that of the European Shrikes, though they resemble these on the whole more than any birds of our latitudes. They seem to be the male and female of the same species.

* So called on account of the thickness and length of the bill (*bec*).

† The specific character :—" Cinereous, the head, the quills of the wings, and the primaries of the tail, black." It is of the size of the blackbird, being eight inches and a half long.

V.

The YELLOW-BELLIED SHRIKE*.

Becarde a Ventre Jaune, Buff.

Lanius Sulphuratus, Linn. and Gmel.

Lanius Cayanensis Luteus, Briss.

This bird has a long bill like the preceding, and therefore related to it. Indeed, the only difference consists in the colours of the plumage.

* Specific character : — “ Dusky ; yellow beneath, the head blackish, and encircled by a whitish stripe.” It is near nine inches in length.

VI.

The HOOK-BILLED SHRIKE†.

Le Vanga, ou *Becarde a Ventre Jaune*, Buff.

Lanius Curvirostris, Linn. and Gmel.

Collurio Madagascariensis, Briss.

Lanius Major Nigro & Albo Mixtus, Gerin. Orn.

This bird was sent from Madagascar by Poivre, under the name of *Vanga*. Though considerably different from the Shrikes, it seems to be more related to them than any other birds of Europe :—It bears a resemblance to the two preceding.

† Specific character : — “ The tail wedge-shape, the body white, the back black, the five first quills of the wings marked with a white spot.” It feeds upon fruits. It is ten inches long.

VII.

The RUFOUS SHRIKE*.

Schet-bé, Buff.*Lanius Rufus*, Linn. and Gmel.*Lanius Madagascarensis Rufus*, Briss.

This was also sent from Madagascar by Poivre:—It is much like the preceding, and, did not the distance of the countries preclude the idea, we might suppose them to constitute the same species. The Rufous Shrike is less removed from the European Shrikes, than those of Cayenne, for its bill is shorter.

* Specific character:—"Rufous, white beneath, the head greenish-black." It is about eight inches long.

VIII.

The WHITE-HEADED SHRIKE†.

Tcha-Chert-Bé, Buff.*Lanius Leucocephalus*, Gmel.*Lanius Madagascariensis Major Viridis*, Briss.

We received this bird by the same channel:—It seems to be a proximate species of the pre-

† Specific character:—"Head white, the upper side of the body is a greenish-black, and beneath black; the bill, feet, and nails lead-coloured." It is eight inches long.

ceding,

ceding, or perhaps a variety of age or sex, its bill only being somewhat shorter and less hooked, and its colours rather differently distributed. Indeed all these five birds with thick bills might form a small separate genus.

IX.

The BARBARY SHRIKE*.

Le Gonolek, Buff.

Lanius Barbarus, Linn. and Gmel.

Lanius Senegalensis Ruber, Briss.

We received this bird from Senegal, where the Negroes, as Adanson informs us, call it *gonolek*, that is, *feeder on insects*. It is painted with the most vivid colours: it is nearly of the same size as the European Shrike, and scarcely differs in any thing but the distribution of its tints, which is however nearly similar to what has place in the Great Cinereous Shrike of Europe.

* Specific character:—"Black, beneath red, the crown and thighs fulvous." It is about nine inches long.

X.

The MADAGASCAR SHRIKE*.

Lanius Madagascarensis, Linn. Gmel. and Briss.

Both the male and female of this bird were sent from Madagascar by Poivre; the former under the name of *Cali-calic*, and the latter under that of *Bruia*. We might, on account of its smallness, refer it to the genus of the European Red-backed Shrike; but it differs so much, that it ought to be regarded as a distinct species.

* Specific character:—"Cinereous, beneath whitish, the lines between the bill and the eyes black, the quills of the wings tawny." It is five inches long, and about the size of a sparrow.

XI.

The CRESTED SHRIKE†.

Pie-Grièche Huppée.

Lanius Canadensis.

This bird, which was brought from Canada, has on the crown of its head a soft crest, with long feathers that fall backwards. It is similar to our Woodchat in the distribution of its colours, and may be regarded as a contiguous species, differing scarcely in any thing but the crest and the bill, which is rather thicker.

† Specific character:—"The tail is wedge-shaped, the head crested, the body tawny, and below waved with fulvous, and dusky." It is six inches and a half long. Sometimes wants the crest.

The NOCTURNAL BIRDS of PREY.

THE eyes of these birds are so delicate, that they seem to be dazzled by the splendor of day, and entirely overpowered by the lustre of the solar rays; they require a gentler light, such as prevails at the dawn, or in the evening shades. They leave their retreats to hunt, or rather to search for their prey, and their expeditions are performed with great advantage; for in this still season, the other birds and small animals feel the soft influence of sleep, or are about to yield to its soothing power. Those nights that are cheered by the presence of the moon, are to them the finest of days, days of pleasure and of abundance, in which they seek their prey for several hours together, and procure an ample supply of provisions. When she withholds her silver beams, their nights are not fortunate; and their ravages are confined to a single hour in the morning and in the evening; for we cannot suppose that these birds, though they can distinguish objects nicely in a weak light, are able to perform their motions when involved in total darkness. Their sight fails when the

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gloom of night is completely settled ; and in this respect they differ not from other animals, such as hares, wolves, and stags, which leave the woods in the evening to feed or to hunt during the night : only, these animals see still better in the day than in the night ; whereas the organs of vision in the nocturnal birds are so much overpowered by the brightness of the day, that they are obliged to remain in the same spot without stirring ; and when they are forced to leave their retreat, their flight is tardy and interrupted, being afraid of striking against the intervening obstacles. The other birds, perceiving their fear, or their constrained situation, delight to insult them : the tit-mouse, the finch, the red-breast, the black-bird, the jay, the thrush, &c. assemble to enjoy the sport. The bird of night remains perched upon a branch, motionless and confounded, hears their movements and their cries, which are incessantly repeated, because it answers them only with insignificant gestures, turning round its head, its eyes, and its body with a foolish air. It even suffers itself to be assaulted without making resistance ; the smallest, the weakest of its enemies are the most eager to torment it the most, determined to turn it into ridicule. Upon this play of mockery, or of natural antipathy, is founded the pretty art of bird-calling. We have only to put an Owl, or even to imitate its notes, in the place where the limed twigs are spread, in order to draw the other birds.

birds*. The best time is about an hour before the close of the day; for if this diversion be deferred later, the same small birds which assemble in the day to insult over the bird of night with so much audacity and obstinacy, avoid the rencounter after the evening shades have restored his vigour, and encouraged his exertions.

All this must be understood with certain restrictions, which it will be proper to state here: 1. All the species of Owls are not alike dazzled with the light; the Great-eared Owl sees so distinctly in open day, as to be able to fly to considerable distances; the Little Owl chases and catches its prey long before the setting, and after the rising of the sun. Travellers inform us, that the Great-eared Owl or Eagle-Owl of North America catches the white grouse in open day, and even when the reflection of the snow adds to the intensity of the light: Belon remarks, that "whoever will examine the sight of these birds, will find it not so weak as is commonly imagined." 2. It appears that the Long-eared Owl sees worse than the Scops, and is the most dazzled by the light of day, as are also the Tawny Owl, the White, and the Aluco; for these equally attract the same birds, and afford

* This sort of sport was known to the antients; for Aristotle distinctly mentions it in the following terms: "In the day all the other small birds flock round the Owl, to admire it, as it is called, and strike it. Whence, if it is set in a proper place, many sort of small birds may be caught."

them sport. But before we relate the facts which apply to each particular species, we must mention the general distinctions.

The Nocturnal Birds of Prey may be divided into two principal *genera*: the genus of the *Hibou*, (the Long-eared or Horned Owl,) and that of the *Chouette*, (the Earless or Little Owl,) each of which contains several different species. The distinguishing character of these two *genera* is, that all the *Hibous* have two tufts of feathers in the shape of ears erect on each side of the head; while, in the *Chouettes*, the head is round without tufts or prominent feathers*. We shall reduce the species contained in the genus of the *Hibou* to three. These are, 1. The Great-eared Owl. 2. The Long-eared. 3. The Scops. But the genus of *Chouette* includes at least five species: which are, 1. The Aluco. 2. The Tawny. 3. The White. 4. The Brown. And 5. The Little Owl. These eight species are all found in Europe, and even in France; some are subject to varieties, which seem to depend on the difference of climates; others occur that resemble them in the New

* Pliny seems to have remarked this distinction: "Of the feathered race, the *Bubo* and the *Otus* alone have feathers like ears." Lib. xi. 37. And again, "The *Otis* is smaller than the *Bubo*, larger than the *Noctua*, and has feathers projecting from the ears, whence its name; some call it in Latin *Asio*." Lib. x. 23. N. B. There are three species with tufted ears: the Great-eared Owl (*Bubo*); the Long-eared Owl (*Otus*); and the Scops-eared Owl (*Asio*), which Pliny confounds with the *Otus*.

World;

World; and indeed, most of the Owls of America differ so little from those of Europe, that we may refer them to the same origin.

Aristotle mentions twelve species of birds which see in the dark, and fly during the night; and as in these he includes the Osprey and Goat-sucker, under the names of *Phinis* and *Ægotilas*; and three others, under the names of *Capriceps*, *Chalcis*, and *Charadrios*, which feed on fish, and inhabit marshes, or the margins of lakes and streams, it appears that he has reduced all the Owls known in Greece in his time to seven species: the Long eared, which he calls *Ὀτός*, *otus*, precedes and conducts the quails when they begin their migration, and for this reason it is named *dux*, or *leader*; the etymology seems certain, but the fact must be suspected. It is true that the quails, when they leave us in the autumn, are excessively fat, and scarcely fly but in the night, and repose during the day in the shade to avoid the heat; and hence the Long-eared Owl may sometimes be observed to accompany or go before these flocks of quails; but it has never been observed that the Long-eared Owl is, like the quail, a bird of passage. The only fact which I have found in travellers that seems to countenance this opinion, is in the Preface to Catesby's Natural History of Carolina. He says, that in the twenty-sixth degree of north latitude, being nearly in the middle of the Atlantic, in his passage to Carolina, he saw an Owl over the

vessel ; and he was more surpris'd at this circumstance, as that bird has short wings, and is easily fatigued. He adds, that after making several attempts to alight, it disappeared.

It may be alleged in support of this fact, that the Owls have not all short wings, since in most of these birds they stretch beyond the point of the tail, and the Great-eared Owl and the Scops are the only species whose wings do not reach quite its length. Besides, we learn from their screams, that all these birds perform long journies ; whence it seems that the power of flying to a distance during the night, belongs to them as well as to the others ; but their sight being less perfect, and not being able to descry remote objects, they cannot form an idea of a great extent of country, and therefore have not, like most other birds, the instinct of migration. At least, it appears that our Owls are stationary. I have received all the species not only in summer, in spring, in autumn, but even in the most piercing colds of winter. The Scops alone disappears in this season ; and I have actually been informed, that this small species departs in the autumn, and arrives in the spring : hence we ought to ascribe to the Scops, rather than the Long eared Owl, the business of leading the quails. But this fact is not proved, and I know not the foundation of another fact advanced by Aristotle, who says, that the Tawny Owl (*Glaux Noctua*, according to his translator Gaza) conceals

ceals itself for several days together ; for in the chillest season of the year I have received some that were caught in the woods : and if it be pretended that the words *Glaux Noctua* signifies the White Owl, the fact would be still wider off the truth ; for except in very dark and rainy evenings, it is constantly heard through the whole year to whistle and scream about twilight.

The twelve Nocturnal Birds mentioned by Aristotle, are : 1. *Byas* ; 2. *Otos* ; 3. *Scops* ; 4. *Phinis* ; 5. *Ægotilas* ; 6. *Eleos* ; 7. *Nyctiorax* ; 8. *Ægolios* ; 9. *Glaux* ; 10. *Charadrios* ; 11. *Chalcis* ; 12. *Ægocephalus* ; which Theodore Gaza translates by the Latin words, 1. *Bubo* ; 2. *Otus* ; 3. *Asio* ; 4. *Offifraga* ; 5. *Caprimulgus* ; 6. *Aluco* ; 7. *Cicunia*, *Cicuma*, *Ulula* ; 8. *Ulula* ; 9. *Noctua* ; 10. *Charadrius* ; 11. *Chalcis* ; 12. *Capriceps*.

The nine first seem to be as follow :—

1. The Great-eared Owl ; 2. The Long-eared Owl ; 3. The Scops ; 4. The Osprey ; 5. The Goat-sucker ; 6. The White Owl ; 7. The Aluco Owl ; 8. The Brown Owl ; 9. The Tawny Owl.

All the naturalists and men of letters will readily admit that, 1. The *Byas* of the Greeks, *Bubo* of the Latins, is our Great-eared Owl. 2. That the *Otos* of the Greeks, *Otus* of the Latins, is our Long-eared Owl. 3. The name of Scops in the Greek, in Latin *Asio*, is the Small Owl. 4. The *Phinis* of the Greeks, *Offifraga* of the Latins,

is the Osprey. 5. The *Ægotilas* of the Greeks, *Caprimulgus* of the Latins, is the Goat-sucker. 6. That the *Eleos* of the Greeks, *Aluco* of the Latins, is the White Owl. But at the same time it will be asked, why I translated *Glaux*, by the Tawny Owl; *Nycticorax*, by *Aluco*; and the *Ægolos*, by the Brown Owl; while all the nomenclators and naturalists who have preceded me have rendered *Ægolos* by *Hulotte* (*Aluco*), and are obliged to confess that they know not to what bird to refer the *Nycticorax*, nor the *Chalchidrios*, the Chalcis, and the *Capriceps*. I shall be blamed for transferring the name of *Glaux* to the Tawny Owl, since it has been applied, by the uniform consent of all who have gone before me, to the Brown Owl, or even to the Little Owl.

I proceed to explain the reasons which have induced me to make these innovations, and to remove the obscurity which attends their doubts and their false interpretations. Among the Nocturnal birds, which we have enumerated, the Tawny Owl is the only one whose eyes are blueish, the *Aluco* the only one whose eyes are blackish; in all the rest the iris is of a golden, or at least of a saffron colour. But the Greeks, whose accuracy and precision of ideas I have often admired in the names which they have applied to the objects in nature, which always mark the characters in a striking manner, would have had no foundation to bestow the name of *Glaux* (*glaucous, cærulean*) upon birds which have
none

none of the blue shade, and whose eyes are black, orange, or yellow; but they would have had the best reason to give this name to that single species which is distinguished from all the rest by the blue tinge of its eyes; nor would they have called those birds whose eyes are yellow or blue, and whose plumage is white or grey, and bear no resemblance to the Raven, by the term *Nycticorax*, or Raven of night; but they would with great propriety have bestowed this name on that Owl, which is the only one of the Nocturnal Birds whose eyes are black, and whose plumage is almost black, and which in its size bears a greater analogy than any other to the Raven.

The probability of this interpretation derives additional force from another consideration. The *Nycticorax* was a common and noted bird among the Greeks, and even among the Hebrews, since it is often the subject of their comparisons (*sicut nycticorax in domicilio*). We cannot imagine with those literati, that this bird was so solitary and so rare, that it can be no longer found. The Aluco is common in every country, it is the largest of the Earless Owls; the blackest and the likest the Raven: it differs widely from every other species; and this observation drawn from the fact itself, ought to have more weight than the authority of those nomenclators, who are too little acquainted with nature to interpret with accuracy its history.

But admitting that the *Glaux* signifies Tawny Owl, the Earless Owl with blue eyes, and *Nycticorax*, Aluco, or Earless Owl with white eyes, the *Ægolos* must be the Earless Owl with yellow eyes.—This requires some discussion.

Theodore Gaza renders the word *Nycticorax*, first by *Cicuma*, then by *Ulula*, and afterwards by *Cicunia*: this last is probably the mistake of the transcribers, who have written *Cicunia* instead of *Cicuma*; for Festus, prior to Gaza, also translated *Nycticorax* by *Cicuma*; and Isidorus by *Cecuma*; others by *Cecua*.—To these words we may even refer the etymology of *Zueta* in Italian, and *Chouette* in French. If Gaza had attended to the characters of the *Nycticorax*, he would have adhered to his first interpretation, *Ulula*, and would not have made a double application of this term; for he would, in that case, have translated *Ægolos* by *Cicuma*. Upon the whole therefore we may conclude, that *Glaux* is the Tawny Owl, *Nycticorax* the Aluco Owl, and *Ægolos* the Brown Owl.

The *Charadrios*, the *Chalcis*, and the *Capriceps*, still remain to be considered: Gaza is contented with giving the Greek words a Latin termination. But as these birds are different from those of which we at present treat, and seem to be the inhabitants of marshes and the margins of lakes; we shall defer the consideration of the subject till we come to the history of the birds that fish in the twilight. The Little Owl is the only species

species whose name I cannot discover in the Greek language. Aristotle never mentions it, and probably he confounded it with the Scops, which it indeed resembles in its size, its shape, and in the colour of its eyes; and the only essential difference consists in the small projecting feather which the Scops has on each side of its head.—But we shall describe these distinctions more minutely in the following articles.

Aldrovandus justly remarks, that most of the mistakes in Natural History arise from the confusion of names, and that the subject of Nocturnal Birds is involved in the obscurity and shades of night. What we have now mentioned will, I hope, in a great measure dispel the cloud; and to throw greater light, we shall subjoin a few remarks. The names *Ule*, *Eule* in German, *Owl*, *Owlet* in English, *Huette*, *Hulote* in French, are derived from the Latin *Ulula*, which imitates by its sound the cry of the large kind of Nocturnal Birds. It is probable, as Frisch remarks, that this appellation was first appropriated to the Great Earless Owl, but was afterwards applied to the small ones, from their resemblance in form and instinct; and at last became a general term, comprehending the whole genus. Hence proceeds that confusion which is but imperfectly remedied by annexing epithets that allude to their haunts, their shape, or their cry. For example *Stein-eule* in German, Stone-owl, is the *Chouette*, or the Brown Owl;
Kirch-

Kirch-eule in German, Church Owl, is the French *Effraie*, White Owl, which is also named *Schleyer-eule*, Winged Owl, *Perl-eule*, Pearl Owl. *Ohr-eule* in German, Horn Owl, is the *Hibou* of the French (Long-eared). *Knapp-eule*, Nut-cracker Owl, is a name which might have been applied to all the large Owls, which make a noise like that action with their bills. *Bubo* in Latin, the *Eagle Owl*, is derived from *Bos*, from the resemblance of its note to the lowing of an ox. The Germans have imitated the sound, *uhu*.

The three species of Earless Owls, and the five species of Eared Owls, which we have now distinguished, include the whole genus of the Nocturnal Birds of Prey. They differ from the birds that commit their ravages in the day.

1. By the sense of sight, which is delicate, and unable to support the glare of light. The pupil contracts in the day-time, but in a manner different from that of cats; for it retains its form, and contracts equally in every direction, while that of cats becomes narrow and extended vertically.
2. By the sense of hearing, which appears to be superior to that of other birds, and perhaps to that of every other animal; for the drum of the ear is proportionally larger than in the quadrupeds, and besides they can open and shut this organ at pleasure, a power possessed by no other animal.
3. By the bill, whose base is not, as in those birds which prey in the day, covered with a thin naked skin, but is shaded with feathers

thers projecting forward ; it is also short, and both mandibles are moveable like those of the parroquets, which is the reason that they so often crack their bill, and can receive very large morsels, which their wide throat admits to be swallowed.

4. By their claws, which have an anterior moveable toe, that can be turned backwards at pleasure, and enables them to rest on a single foot more firmly and easily than others. 5. By their mode of flying, which when they leave their hole, is a kind of tumbling, and is constantly sideways, and without noise, as if they were wafted by the wind.—Such are the general distinctions between the Nocturnal and Diurnal Birds of Prey : they have nothing similar but their arms, nothing common but their appetite for flesh and their instinct for plunder.

The GREAT-EARED OWL*.

Le Duc, ou Grand Duc, Buff.

Strix Bubo, Linn. Gmel. Will. Kram. Briff. &c.

Ulula, Klein.

Bubo Maximus, Ger. Orn.

In Italian, Gufo, Duco, Dugo.

In Spanish, Buba.

In Portuguese, Mocho.

In German, Uhu, Hubu, Schuffut, Bhu, Becghu, Hubuy, Hub, Huo, Pubi.

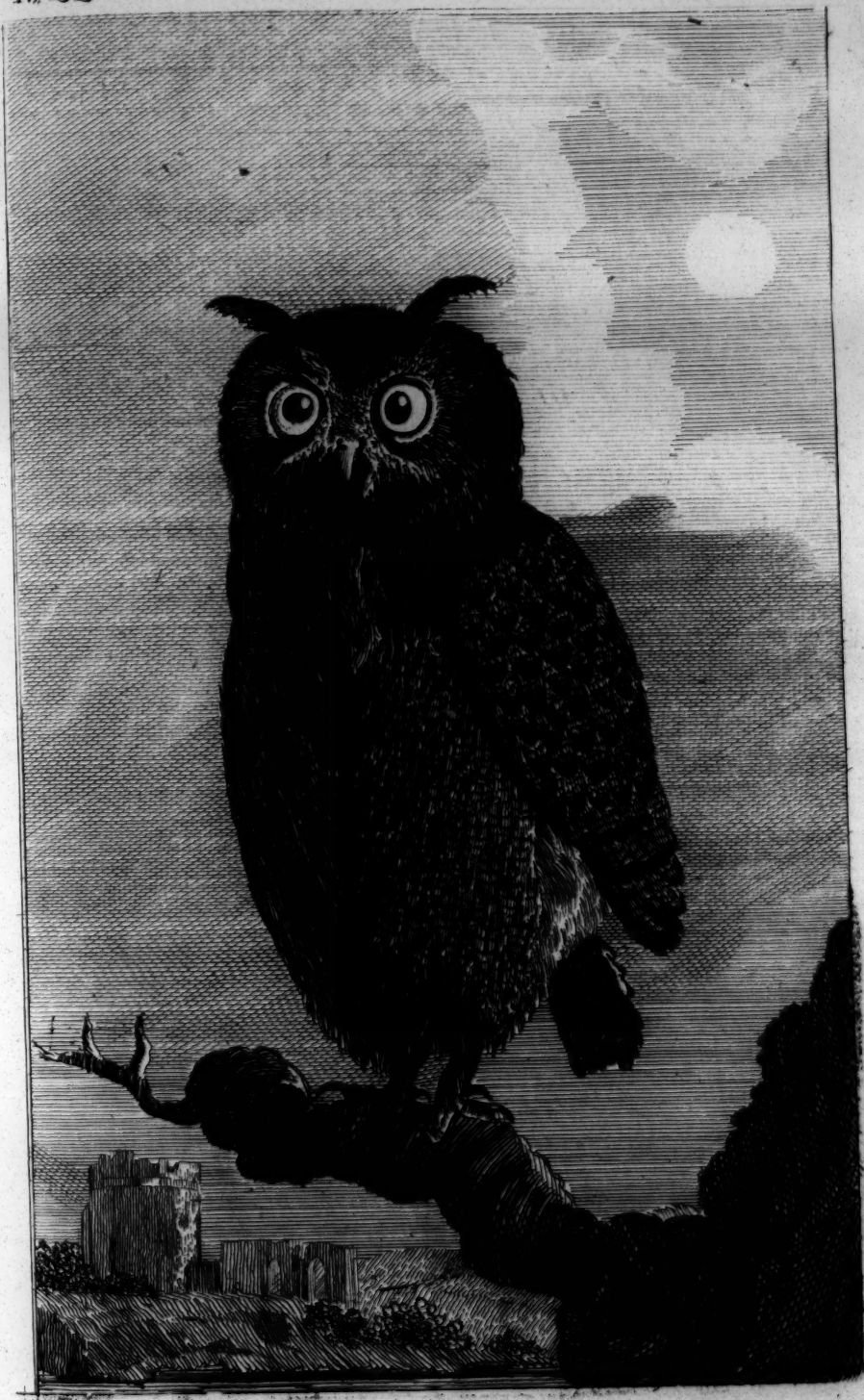
In Polish, Pubacz, Sorwalezna.

In Swedish, Uf.

THE poets have consecrated the Eagle to Jupiter, and the Great-eared Owl to Juno. It is indeed the Eagle of the night, and the king of that tribe of birds which avoid the light of day, and resume their activity after the shades of the evening descend. At first sight it appears as large and strong as the Common Eagle; but it is really much smaller, and its proportions are quite different. The legs, the body, and the tail, are shorter than in the Eagle; the head much larger; the wings not so broad, and do not exceed five feet. It is easily distinguished by its coarse figure, its enormous head,

* The Greek name *Buας* is perhaps derived from *Bας*, an Ox, from the resemblance of the cry of the Owl to the bellowing of an Ox. The Latin *Bubo* is said to be formed from *Bufo*, a Toad, which it was supposed by the vulgar to breed. Does it not come from *Bos*, *Bovis*, an Ox, for the same reason as the Greek name?

N^o 22



THE EAGLE-OWL.



the broad and deep cavities of its ears, the two tufts which rise more than two inches and a half on its crown ; its bill short, thick, and hooked ; its eyes large, steady, and transparent ; its pupils large and black, surrounded with a circle of an orange-colour ; its face encircled with hairs, or rather small white ragged feathers, which terminate in the circumference of other small frizzled feathers ; its claws black, very strong and hooked ; its neck very short ; its plumage of a rusty brown, spotted with black and yellow on the back, and with yellow on the belly, mottled with black spots, and ribbed with a few bars of a brown colour confusedly intermixed ; its feet covered to the claws with a thick down and rusty feathers* ; and lastly, its frightful cry *biboo, booboo, booboo, pookoo*†, with which it interrupts the silence of the night, when all the other animals enjoy the sweets of repose. It awakens them to danger, disturbs them in their retreat, pursues them, seizes them, or tears them to pieces, and transports the fragments to the

* The female differs from the male in nothing except that its plumage is generally darker.

† The following particulars are mentioned by Frisch, in regard to the different cries of the Great-eared Owl, which he kept a long time. " When it was hungry it uttered a sound like that of the word *Pubu* ; if it heard an old person cough or hawk, it began very loud, like the laughter of a peasant in liquor, and continued as long as possible without inspiring." " I suppose," subjoins Frisch, " that this was in the love season, and that it took the coughing for the cry of its female : but when it cries through pain or fear, the sound is exceedingly strong and harsh, though a good deal like that of the birds which prey by day."

caverns

caverns where it fixes its gloomy abode. It haunts only rocks, or old deserted towers that are situated near mountains; it seldom ventures into the plains; it declines the boughs of trees, but commonly perches upon solitary churches and ancient castles. Its prey consists in general of young hares, rabbits, moles, and mice, which it swallows entire, digests the fleshy parts, and afterwards throws up the hair, bones, and skin, rolled into a ball*; it also devours bats, serpents, lizards, toads, and frogs, and feeds its young with them. It is so active in the breeding season, that its nest is quite crammed with provisions: it collects more than other birds of prey.

These birds are sometimes kept on account of their singular figure. The species is not so numerous in France as those of the other Owls; and it is not certain whether they remain the whole year in the country. They however nestle sometimes in hollow trees, and oftener in

* "I have twice," says Frisch, "had Great-eared Owls, and have kept them a long time. I fed them with ox-flesh and liver, of which they swallowed very large bits. If mice were thrown to them they crushed the bones with their bill, then swallowed them one after another, sometimes to the number of five. After some hours, the hair and bones are collected in the stomach, and rejected through the bill. When they can get nothing else, they eat small and middle-sized river-fish of every kind; and after the bones are crushed and rolled in the stomach, they push these up the throat, and throw them out. They will not drink, a circumstance which I have observed in some diurnal birds of prey." — We may observe that these birds can subsist without drinking; but they will often drink when they imagine themselves to be concealed.

the crags of rocks, or in the holes of lofty old walls. Their nest is near three feet in diameter, composed of small branches of dry wood interwoven with pliant roots, and strewed with leaves. They commonly lay one or two eggs, and but seldom three; these resemble somewhat the colour of the plumage of the bird, and are larger than hens eggs. The young are very voracious; and the parents are vigilant in providing subsistence, which they procure in silence, and with much more agility than we should suppose from their extreme corpulence. They often fight with the buzzards, are victorious in the combat, and seize the plunder. They support more easily the light of day than the other nocturnal birds; for they leave their haunts earlier in the evening, and later in the morning. Sometimes the Great-eared Owl is seen attacked by flocks of crows, which accompany his flight and surround him by thousands; he withstands their onset*, drowns their hoarse murmurs with his louder screams, disperses them, and often when the light begins to fail he seizes some fated victim. Though his wings are shorter than those of most of the birds that soar, he can rise to a great height, especially about twilight; but at other times he generally flies low, and to short distances. The Great-eared Owl is employed in falconry to attract the notice of the Kite, and

* Klein.

he is furnished with a fox-tail to heighten the singularity of his figure. Thus equipped, he skims along the surface of the ground, and alights on the plain, without venturing to perch upon a tree. The Kite perceives him from a distance, and advances not to fight or attack him, but to admire his odd appearance, and generally hovers about unguarded, till he is surprised by the sportsman, or caught by the birds of prey that are flown at him. Most of the breeders of pheasants also keep a Great-eared Owl, which they place in a cage among the rushes in an open place, to draw together the ravens and the crows, which gives them an opportunity of shooting and killing a greater number of these noisy birds, so alarming to the young pheasants. To avoid scaring the pheasants, they shoot at the crows with a cross-bow.

With regard to the internal structure of this bird, it has been remarked, that the tongue is short and broad, the stomach capacious, the eye inclosed in a cartilaginous coat in the form of a capsule, the brain invested with a single coat thicker than that of other birds; and, as in the quadrupeds, there are two membranes which cover the *cerebellum*.

It appears that in this species there is a first variety which includes a second; both are found in Italy, and have been mentioned by Aldrovandus. The one may be called the *Black-winged*

*winged Great-eared Owl**; the second, the *Naked-footed Great-eared Owl*†. The first differs from the Common Great-eared Owl only by the colours of its plumage, which is browner or blacker on the wings, the back, and the tail. The second, which resembles it exactly in the deepness of its colour, is distinguished by its legs and feet, which are but slightly shaded with feathers.

Besides these two varieties, which are found in our own climate, there are others which occur in distant countries. The White Eagle-Owl of Lapland, mottled with black spots, and which is described by Linnæus, appears to be only a variety produced by the cold of the north‡. Most of the quadrupeds are either white, or soon become so, within the polar circle, and many birds are subject to the same change. This bird, which is found in the mountains of Lapland, is white, spotted with black; and the difference of colour is what alone distinguishes it from the Common Great-eared Owl. We may therefore refer it to that species as a mere variety.

As this bird can bear both heat and cold, it is found in the north and south of both continents;

* This is the first variety of the Great-eared Owl in the Linnæan system, and the Athenian Horn-Owl of Edwards and Latham.

† This is the second variety of Linnæus, and the Smooth-legged Owl of Latham.

‡ This is the *Strix Scandiaca*, a variety of the *Strix Virginiana* of Linnæus, or *Virginian Eared Owl*.

and not only is the species spread so extensively, but even the varieties. The *Jacurutu** of Brazil, described by Marcgrave, is exactly the same as our Common Great-eared Owl; and one brought from the Straits of Magellan differs little from the European species. That mentioned by the author of the Voyage to Hudson's-bay by the name of *Crowned Owl*†, and by Edwards *Eagle Owl* of Virginia, are varieties which occur in America the same with those in Europe; for the most remarkable difference between the Common Eagle-Owl, and that of Hudson's-bay and of Virginia‡ is, that the tufts rise from the bill, and

* "It is equal in bulk to the geese; its head is round like that of a cat; the bill thick and black, the upper mandible projecting; the eyes large, prominent, round, and shining like crystal, within which a yellow circle appears near the margin; near the ears are feathers two inches long, which are erect, and tapering to a point like ears; the tail is broad, and the wings do not reach to its extremity; the legs are clothed with feathers as far as the feet, on which there are four toes, three before and one behind, each of which is furnished with a hooked nail that is black, more than an inch long, and very sharp; the feathers over the whole body are variegated elegantly with yellow, white, and blackish." MARCG.

† "The Great-crowned Owl is very common in the country about Hudson's-bay. It is a very singular bird, and its head is scarcely smaller than that of a cat; what are called its horns are feathers which rise precisely above the bill, where they are mixed with white, becoming by degrees of a brown red, spotted with black." *Voyage to Hudson's-bay*.

‡ "This bird," says Edwards, "is of the largest species of Owls, and much resembling in bulk the Horned-Owl, which we call the *Eagle-Owl*. Its head is as large as that of a cat. . . . The bill is black; the upper mandible is hooked, and projects beyond the lower, as in the Eagles; it is also sheathed with a skin in which the nostrils are placed, which is covered at the base with gray feathers that

and not from the ears. But in the figures of the three Eagle-Owls given by Aldrovandus, the tufts rise from the ears in the first only, or the Common; and in the others, which are but varieties that occur in Italy, the tuft feathers are not inserted at the ears, but at the base of the bill, as in the Eagle-Owl of Virginia described by Edwards. Klein was therefore rash in asserting, that the Eagle-Owl of Virginia was a species entirely different from that of Europe. If he had consulted the figures of Aldrovandus and Edwards, he would have found that this distinction, which only constitutes a variety, occurs in

that encircle the bill; the eyes are large, and the iris is shining and gold-coloured. . . . *The feathers which form these horns rise immediately above the bill*, where they are mixed with a little white; but as they advance above the head they become of a brown red, and terminate with black on the outside; the upper part of the head, neck, back, wings, and tail, are of a dull brown, spotted and intermixed irregularly with small transverse reddish or cinereous lines. . . . The part of the throat under the bill is white; somewhat lower, orange-yellow, spotted with black; the lower part of the breast, the belly, the legs, and the under part of the tail, white or pale gray, and pretty regularly crossed with brown bars; the inside of the wings is variegated, and coloured in the same manner; the feet are covered as far as the nails with feathers of a whitish gray, and the nails are of a deep horn colour. . . . I drew this bird after the life in London, whither it was brought from Virginia. I have beside me another stuffed one, which I received from Hudson's-bay; it appears to me of the same species with the former, being of the same size, and differing only in the shades of its plumage."

I shall observe that there is only one character which seems to imply that this bird is a permanent variety of the Great-eared Owl, viz. that the tufts do not rise from the ears, but from the base of the bill; and as the same bird is also found in Europe, we may regard it as composing a distinct family in this species.

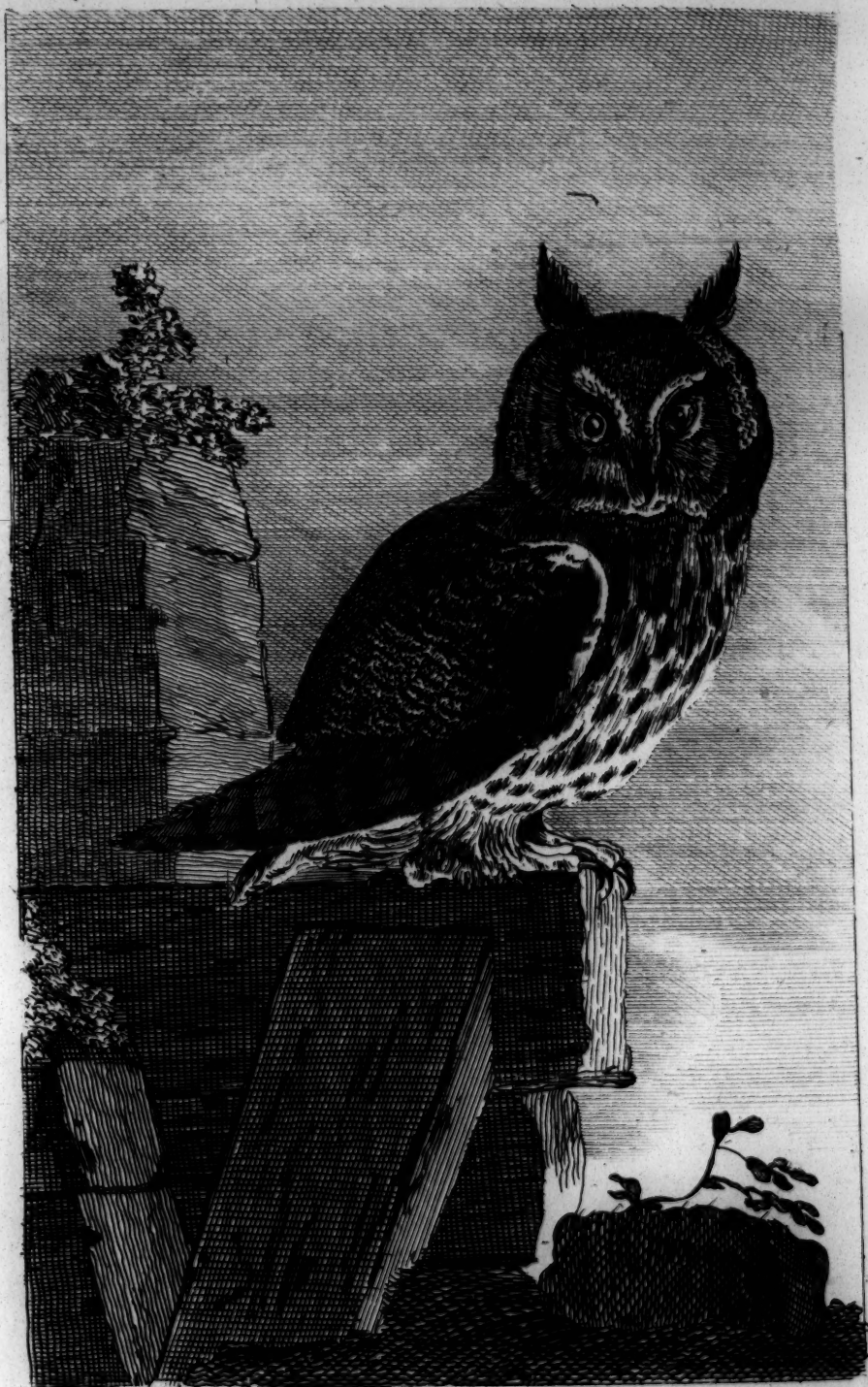
Italy as well as in Virginia, and that in general the tufts of these birds do not proceed exactly from the side of the ears, but rather from below the eyes, and the upper part of the base of the bill. [A]

[A] This article includes two species of Owls in the Linnæan system:—

First, *Strix Bubo*, or the Great-eared Owl, which has a rufous plumage; it is of the size of the Eagle; it inhabits Europe, and is found, though rarely, in the north of England, Cheshire, and Wales. It includes three varieties: first, the Athenian Horn-Owl, which is of a darker colour, and has more slender feet: secondly, the Smooth-legged Owl, whose feet are naked: thirdly, the Magellanic Eared Owl, or *Jacurutu* of Marcgrave, which is dusky-yellowish, variegated with white.

Secondly, *Strix Virginianus*, or the Virginian Eared Owl, the Eagle Owl, or Horned Owl. “Its upper part is dusky, variegated with delicate rufous and cinereous lines; below, it is pale cinereous, with dusky transverse streaks; the throat and sides of the breast streaked with dusky orange.” It is rather smaller than the preceding; it inhabits the north of Asia, and the whole of America, where, during the night, it makes a hideous noise in the woods, not unlike the hallooing of a man, and has often misled travellers. The Indians dread its ominous presages, and are provoked at any person who mimicks its hooting.

N^o 23



THE LONG EARED OWL.

The LONG-EARED OWL*.

Le Hibou, ou Mogen Duc, Buff.

Strix Otus, Linn. Gmel. Will. Kram, &c.

Afo, Briff. and Klein.

Noctua Minor Aurita, Frisch.

Hornoder Obr-eule, Gunth. Nest.

The Horn Owl, Albin.

THE ears of this bird are very wide, like those of the Great-eared Owl, and covered with a tuft formed of six feathers pointing forwards †; but these tufts are much shorter than those of the Great Owl, and hardly exceed an inch in length; they are however proportioned to its size, for it weighs only about ten ounces, and is not larger than a crow. It is therefore a species evidently different from that of the Great-eared Owl, which is about the bulk of a goose; and from that of the Scops, which is not larger than a blackbird, and in which the tufts above the ears are very short. I make this re-

* In Greek it was called $\Omega\tau\omicron\varsigma$, from $\sigma\epsilon$, the ear; in Latin, *Otis*, or *Afo*; in modern Italian it is termed *Guso*, or *Barbagianni*; in Spanish, *Mochuelo*; in German, *Obr-eule* (*Ear-owl*), *Kautz-eule*, or *Käutzelein* (*Coot-owl*); in Swedish, *Horn-ngla*; in Polish, *Gluk-nocny*, or *Sowa-ursata*.

† Aldrovandus says, that he observed that each of the feathers in this crest is susceptible of a separate motion, and that the skin which covers the cavity of the ears arises from the part of the inside next to the eye.

mark, because some naturalists have considered these as merely varieties of the same species. The Long-eared Owl measures about a foot from the point of the bill to the claws; its wings extend three feet, and its tail is five or six inches. The upper part of its head, neck, back, and wings, are marked with rays of gray, rusty, and brown; the breast and belly are rusty, with irregular and narrow brown bars; the bill is short and blackish; the eyes of a fine yellow; the feet covered with rusty-coloured feathers as far as the origin of the claws, which are pretty broad, and of a blackish brown. We may also observe, that the tongue is fleshy, and somewhat forked, the nails very sharp, the outer claw moveable, and may be turned backwards; the stomach capacious, the gall-bladder very large, the guts about twenty inches long, the two *cæcas* two inches and a half deep, and proportionally thicker than in the other birds of prey.

The species is common, and much more numerous in our climate * than the Great-eared Owl, which seldom occurs in winter. The Long-eared Owl is stationary during the whole year, and is even found more readily in winter than in summer. It commonly lodges in old ruined buildings, in the caverns of rocks, in the hollows of aged trees, in mountain-forests, and

* It is more common in France and Italy than in England. It is found very frequently in Burgundy, Champagne, Sologne, and in the mountains of Auvergne.

seldom

seldom ventures to descend into the plains*. When attacked by other birds, it makes a dexterous use of its talons and bill; and it even turns on its back when its antagonist is too powerful.

It appears that this bird, which is common in our part of Europe, is found also in Asia; for Belon mentions his having met with it in the plains of Cilicia.

This species admits of several varieties, the first of which occurs in Italy, and has been described by Aldrovandus. It is larger than the common sort, and differs in the colour of its plumage.

These birds seldom take the trouble to construct a nest; for all the eggs and young which I have received were found in the nests of other birds; often in those of magpies, which it is well known construct a new one every year; sometimes in those of buzzards; but I could never procure a nest built by themselves. They generally lay four or five eggs, and the young, which are at first white, acquire their natural colour in the course of fifteen days.

As this Owl can support cold, and is found in Sweden† and in France, and passes the winter in our latitudes, it could migrate from one continent into the other. It appears that it is found

* "The Gufo (the Long-eared Owl) lodges in grottoes and the hollows of trees, in the crannies and fissures of walls, and the roofs of uninhabited houses, among precipices and in desert tracts." *Olinia Ucceller.*

† Linn. *Faun. Suec.*

in Canada *, and in many other parts of North America ; and probably the Owl of Carolina described by Catesby, and that of South America mentioned by Father Feuillée †, are only varieties of our species, occasioned by the difference of climates ; especially as they are nearly of the same size, and differ only in the shades and distribution of their colours.

The Long-eared and Tawny Owls ‡ are employed to attract the birds by their call ; and it is observed that the large birds more readily obey

* The following passage from Charlevoix must refer to the Long-eared Owl :—" There is heard almost every night in our island a kind of Tawny Owl which they call *Canot*, and which utters a mournful cry, as if it hallooed *au canot* (to the canoe), whence its name. These birds are not larger than turtles, but they are exactly similar in their plumage to the Long-eared Owls that are common in France. They have two or three small feathers on both sides of the head, which look like ears. Sometimes seven or eight of them assemble on our house-tops, and scream without interruption the whole night." The size here indicated would lead to suppose that this bird is the Scops ; but the projecting feathers of the head shew that it is a variety of the Long-eared Owl.—The same author adds, that the Tawny Owl of Canada differs from that of France in nothing but in having a peculiar cry, and being furnished with a little white ruff about its neck.

† *Bubo ocreo-cinereus Pectore Maculoso*, Feuillée, *i. e.* " The Ash-coloured Ferruginous-Owl, with a spotted breast." The *Tecolotl*, which is found in Mexico and New Spain, is perhaps the same bird ; though this is only conjecture ; for Fernandez has given no figure, or full description.

‡ " The Gufo, or Great Nocturnal Owl, is of the shape of the Tawny Owl, and about the bulk of a hen, with feathers on the sides of the head that appear like two horns of a yellow colour, and mixed with a border of black. It serves as a call for the large birds, such as all the crows and kites, as the Tawny Owl for every kind of small birds." OLINA.

the

the note of the Long-eared Owl, which is a kind of plaintive cry or hollow moaning, *clow*, *clow*, incessantly repeated during the night; and that the small birds resort in greater numbers to the invitation of the Tawny Owl, which is louder and a kind of hallooing, *höhö*, *höhö*. Both these in the day-time make ludicrous gestures in the presence of men, and other animals. Aristotle ascribes this buffoonery to the Long-eared Owl alone, *Otus*. Pliny bestows it on the Scops, and terms it *Motus Satyricos* (i. e. *Satiric Movements*). But the Scops of Pliny is the same with the *Otus* of Aristotle; for the Latins confounded these names together, and united them into one species, qualifying them only by the epithets of *great* and *small*.

What the ancients have related with respect to these awkward motions and ridiculous gestures, must be principally applied to the Long-eared Owl; and, as some philosophers and naturalists have pretended that this was not an Owl, but quite a different bird, which they term the *Lady of Numidia*, I shall here discuss the question, and remove the mistake.

The Anatomists of the Academy of Sciences are those to whom I allude; who, in their description of the Lady of Numidia (*Demoiselle de Numidie*), have endeavoured to establish this opinion, and state their reasons in the following terms:—"The bird," say they, "which we describe, is called the *Lady of Numidia*; because
" it

“ it is a native of that part of Africa, and seems
“ to imitate in some degree the light air and
“ skip of a lady who affects a graceful motion.
“ It is more than two thousand years since na-
“ turalists have spoken of this bird, and remark-
“ ed this peculiarity of instinct. Aristotle gives
“ it the name of *Juggler*, *Dancer*, and *Buffoon*,
“ aping what it sees.—It would seem this danc-
“ ing mimicking bird was rare among the an-
“ cients, because Pliny believes that it was fa-
“ bulous, referring this animal, which he calls
“ *Satyricus*, to the class of Pegasus, Griffons,
“ and Syrens. It has probably been till now un-
“ known to the moderns, since they do not de-
“ scribe it from their own observation, but only
“ from the writings of antiquity, in which it re-
“ ceived the names of *Scops* and *Otus* from the
“ Greeks, and *Asio* from the Latins, and which
“ they had termed *Dancer*, *Juggler*, and *Comedi-*
“ *an*; so that it must be inquired, whether our
“ Lady of Numidia is really the *Scops* or *Otus* of
“ the ancients. The description which they have
“ given us consists of three particulars:—1st, It
“ imitates gestures.—2d, It has tufts of fea-
“ thers on both sides of the head, like ears.
“ —3d, The plumage is, according to Alexander
“ the Myndian, in Athenæus, of a leaden colour.
“ But all these properties belong to the *Lady of*
“ *Numidia*; and Aristotle seems to mark their
“ manner of dancing, which is that of leaping
“ the one before the other, when he says, that
“ they

“ they are caught when they dance one opposite
 “ to the other. Belon however believes, that
 “ the *Otus* of Aristotle is the Owl, for this
 “ only reason, that that bird makes many ges-
 “ tures with its head: most of the translators of
 “ Aristotle, who are also of our opinion, found
 “ it upon the name *Otus*, which signifies having
 “ ears; but they are not peculiar to the Long-
 “ eared Owl; and Aristotle evidently signifies that
 “ the *Otus* is not the Long-eared Owl, when he
 “ says, that the *Otus* resembles it; and this re-
 “ semblance is probably not in regard to the
 “ ears. All the *Ladies of Numidia* which we
 “ have dissected, had on the sides of the ears
 “ these feathers, which have given occasion to
 “ the name *Otus* of the ancients. . . . Their
 “ plumage was of an ash-colour, such as
 “ is described by Alexander the Myndian as be-
 “ longing to the *Otus*.”

Let us compare Aristotle's description of the
Otus with that of the Academicians. “ The
 “ *Otus* is like the Owl, being furnished with
 “ small projecting feathers about the ears, whence
 “ its name, *Otus* or Eared; some call it *Ullula*,
 “ others *Asio*; it is a babbler, a tumbler, and a
 “ mimic, for it imitates dancers. It is caught like
 “ the Owl, the one bird-catcher going round it,
 “ while it is intent upon the other.”

The *Otus*, that is, the Long-eared Owl, is like
 the *Noctua* or Tawny Owl; they resemble in
 fact

fact, in their size, their plumage and natural habits; both are nocturnal birds of contiguous species; whereas the *Lady of Numidia* is six times thicker and larger, and is of a quite different shape, and of a different genus, being by no means a nocturnal bird. The *Otus* differs from the *Noctua* only by the tufts on the head near the ears, and Aristotle remarks this distinction. These are small feathers, straight and tufted, not the long ones that fall back, and hang from each side of the head, as in the *Lady of Numidia*. We cannot therefore refer the word *Otus* to this bird, but evidently to this Long-eared Owl (*Noctua Aurita*); and this inference is confirmed by what Aristotle immediately adds, "some call it *Ulula*, and others *Asio*." Nothing therefore is more groundless, in my opinion, than the pretended resemblance which they have endeavoured to trace between the *Otus* of the ancients and the *Lady of Numidia*, the whole of which is founded on some ludicrous gestures and motions which distinguish this sprightly bird; but the Long-eared Owl is still entitled to the epithets *Screamer**, *Mimic*, *Buffoon*. The other character which Aristotle mentions, that this bird is easily caught, as the other Owls, can only be applied to this bird of night. . . . I might enlarge

* Frisch, speaking of this Owl, says, that its cry is very frequent and strong; and he compares it to the hooting of children running to make game of one; but that this cry is common to several kinds of Owls.

upon this subject, and bring passages from Pliny to support my criticism; but a single remark will remove all doubt. The ludicrous gestures ascribed by the ancients to the Long-eared Owl, belong to most of the nocturnal birds*; their aspect is marked with astonishment, they turn their neck frequently, move their head upwards, downwards, sideways, crack their bill, tremble with their legs, shifting their toe backwards and forwards: these gestures may be observed in birds kept in captivity; but unless they are caught while young we cannot rear them; for those grown up, obstinately refuse all sustenance. [A]

* All the Owls can turn their head like the *Wryneck*. If something uncommon occur, they open their large eyes, bristle their feathers, and look twice as big; they also spread their wings, cower, or squat, but suddenly rise again as if astonished; and twice or thrice they crack their bills. *Id.*

[A] The specific character of the *Long-eared Owl*, *Strix Otus*, LINN. is, "that the tufts of its ears consist of six feathers." It inhabits Europe, America, and the north of Asia, and is even found in the warm climate of Egypt. It lives in the woods remote from the sea, near the settlement of Hudson's-bay. It approaches the dwellings, and is very noisy. It builds in the trees, and never migrates.

The SCOPS-EARED OWL*.

Le Scops, ou Petit Duc, Buff.

Strix Scops, Linn. Gmel. Will. Briss. Klein.

Hornoder Ohr-eule, Gunth. Nest.

Chiu, Alloccarello, Chivino, Zinn.

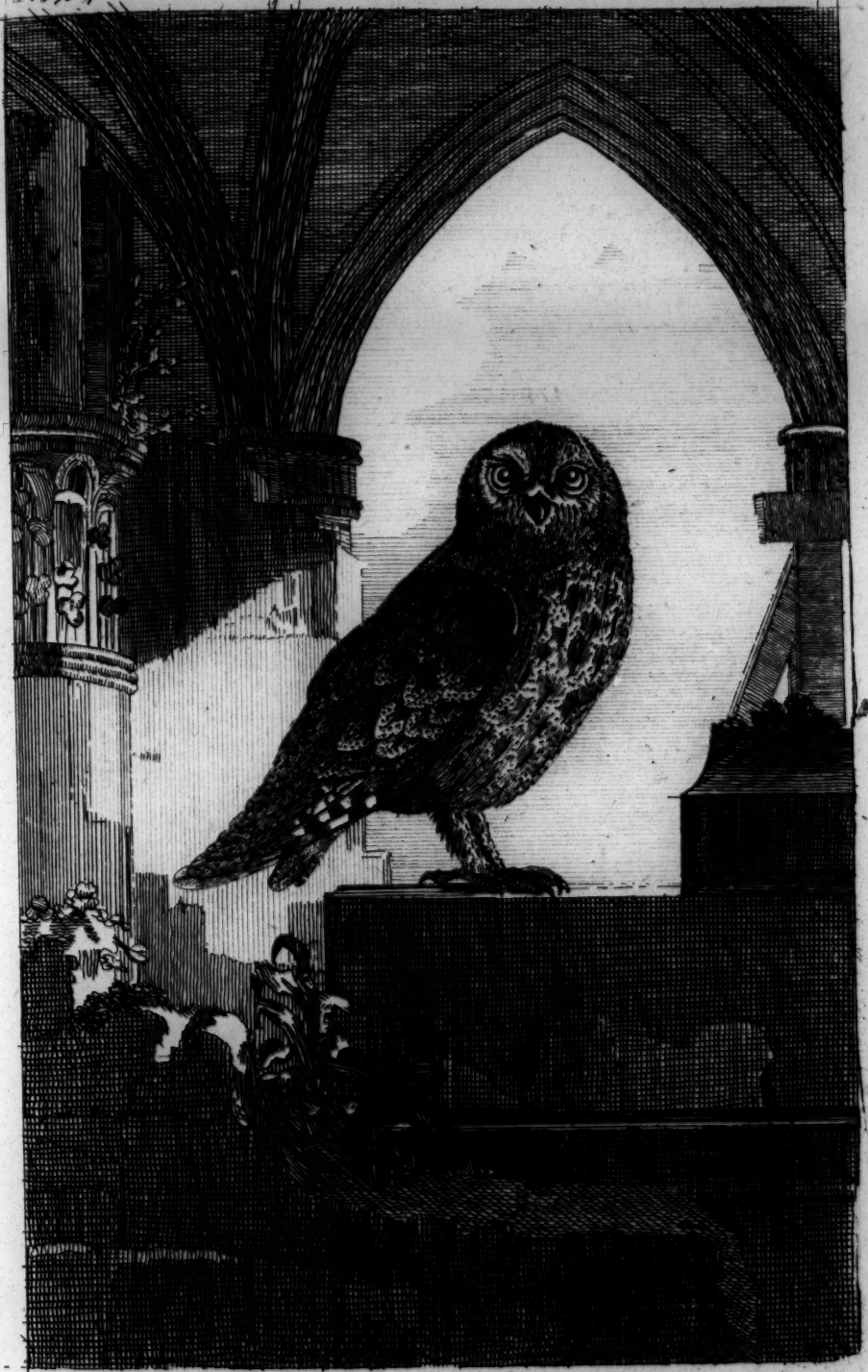
THIS is the third and last species of the Eared-Owls. It is easily distinguished from the other two; for its size exceeds not that of the black-bird, and the tufts over the ears project only half an inch, and consist of a single feather †:—also, its head is much smaller in proportion to its body, and its plumage is more elegantly and distinctly mottled, being variegated with grey, ferruginous brown, and black, and its legs are clothed to the origin of the nails with feathers of a rusty grey mixed with brown spots. It is distinguished also by its instinct; for in spring and autumn it migrates into other climates. It seldom passes the winter in our provinces, but departs after, and returns a little before, the swallows. Though the Scops-eared Owls prefer the high grounds, they crowd where field-mice

* From the Greek Σκωψ, which seems to be formed of Σκις, a shadow, and Ωψ, the face; probably because it avoids the light.

† “ The ears, or small feathers that project like ears, scarcely appear in the dead subject; they are more obvious in the living animal, and consist of only a single featherlet.” ALDROV.

abound,

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THE SCOPS OWL .

B  L

abound, and are useful in extirpating these destructive animals, which, in some years, multiply extremely, and consume the grain, and destroy the roots of plants that are the most necessary to the support of man. It has been often observed, that when this calamity is threatened, the Scops assemble in flocks, and make war so successfully against the mice, that in a few days they entirely clear the field *. The Long-eared Owls also gather sometimes to the number of an hundred : and of this fact we have been twice informed by eye-witnesses ; but it seldom occurs. Perhaps these assemblies are formed with the view of beginning a distant journey : it is even probable, that they migrate from the one continent into the other : for the Bird of New Spain, mentioned by Nierenberg by the name of *Talchicualti*, is either of the same species, or of one nearly allied to that of the Scops †. But though it travels in numerous flocks, it is still rare and

* Dale, in his appendix to his History of Harwich, quotes two instances of this from Childrey. " In the year 1580, at Hallow-tide, an army of mice so overrun the marshes near South-Minster, that they eat up the grafs to the very roots. But at length a great number of *strange painted Owls* came and devoured all the mice. The like happened in Essex anno 1648." Dale ascribes this to the Long-eared Owl, yet the appellation of *strange painted Owls* seems to mark the Scops.

† " The *Talchicualti* seems to be a foreign kind of *otus* ; it is horned or eared, the body small, the bill short and turned up, the pupil black, the iris yellow black-colour, clothed with dusky and cinereous feathers as far as the legs, which are black and incurvated at the nails. In other respects, it is like our *otus*."

not easily caught ; nor have I been able to procure either the eggs or the young ; it was even difficult to instruct the sportsmen to distinguish it from the Little Owl, because both these birds are of the same size, and the short prominent feathers which form the specific character of the Scops, cannot be perceived at a distance.

The colour varies much, according to the age, the climate, and perhaps the sex ; they are all gray when young, but as they grow up, some are browner than others ; the colour of the eyes seems to correspond to that of the plumage ; those that are gray have eyes of a pale yellow, in others the colour is deeper ; but these differences are slight, and ought not to alter the classification.

The ALUCO OWL.

La Hulotte, Buff.

Strix Aluco, Linn. Gmel. and Scop.

Ul-la, Briss. and Will.

Noctua Major, Fris.

Ulula Vulturina, Klein.

Black Owl, Albin.

Brown Owl *, Penn. and Lewin.

THE Aluco, which may be also named the *Black Owl*, and which the Greeks called the *Nyctikorax* or *Night Raven*, is the largest of all the Owls. It is near fifteen inches long from the point of the bill to the claws; its head is large, round, and without tufts; its face sunk as it were in the plumage; its eyes are buried in greyish ragged feathers; the iris blackish, or rather deep brown; the beak of a yellow or greenish white; the upper part of the body a deep iron-gray, mottled with black and whitish spots; the under white, with longitudinal and transverse bars; the tail somewhat more than six inches, the wings stretching a little beyond its extremity, and when spread, measure three feet; the legs covered to the origin of the nails with white feathers, sprinkled with black

* In Greek *Nυκτικοραξ*; in Latin, *Ulula*, from its howling cry; in Italian, *Alocho*; in German, *Hubu*; in Polish, *Lelok*, *Sorwka*, and *Puszczyk*; in Portuguese, *Coruja*.

points*: these characters are fully sufficient to distinguish the Aluco from all the others; it flies lightly, and not rustling with its wing, and always sideways, like the rest of the Owls. Its cry †, *hoō*, *ōō*, *ōō*, *ōō*, *ōō*, *ōō*, *ōō*, resembling the howling of wolves (*ululare*), was the foundation of its name *ulula* among the Romans; and the same analogy has led the Germans to apply the term *hoō*, *hoō*.

The Aluco lodges during summer in the woods, and constantly in hollow trees. Sometimes it ventures in winter to approach our habitations; it pursues and catches small birds; but field-mice are its more usual prey; it swallows them whole, and afterwards discharges by its bill the skins rolled into balls. When it is unsuccessful in the field, it resorts to the farm yards and barns, in quest of mice and rats. It retires early in the morning to the woods, about the time that the hares return to their retreats, and conceals itself in the thickest copse, or remains the whole day motionless in the foliage of the shadiest trees. During inclement weather, it lodges in hollow trees in the day, and makes its excursions in the

* We may add a distinguishing mark, that the uttermost feather of the wing is two or three inches shorter than the second, and this also an inch shorter than the third, and that the longest of all are the fourth and fifth; whereas in the White Owl, the third one is the largest of all, and the uttermost is only half an inch shorter.

† "This bird howls in the night, especially when it freezes, with so gloomy a moan, as to terrify women and children." SALERNE.

night.—These instinctive habits are common to it and to the Long-eared Owl, as well as that of depositing its eggs in the nests of other birds, such as the Buzzards, the Kestrels, the Crows, and Magpies. It generally lays four eggs, of a dirty gray colour, round shaped, and nearly as large as those of a small pullet. [A]

[A] The specific character of the Aluco is, that "its head is smooth, its body ferruginous, its irides black." It is a native of Europe, and is held sacred among the Calmuck Tartars.

The TAWNY OWL.

*Le Chat-Huant**, Buff.

Strix Stridula, Linn. Gmel. Brun. and Kram.

Noctua Major, Fris.

Strige, Zinn.

The Common Brown or Ivy Owl†, Will. and Alb.

AFTER the Aluco, distinguished from the rest of the Earless Owls by its magnitude and its blackish eyes, come the Tawny with bluish eyes, and the White with yellow eyes. They are both nearly of the same size; being thirteen inches long from the point of the bill to the claws; so that they are only two inches shorter than the Aluco, but appear proportionally more slender.—The Tawny Owl is distinguished by its bluish eyes, the beauty and variety of the colours of its plumage, and its cry *höhö*, *höhö*, *höhöhöhö*, by which it seems to shout or halloo with a loud voice.

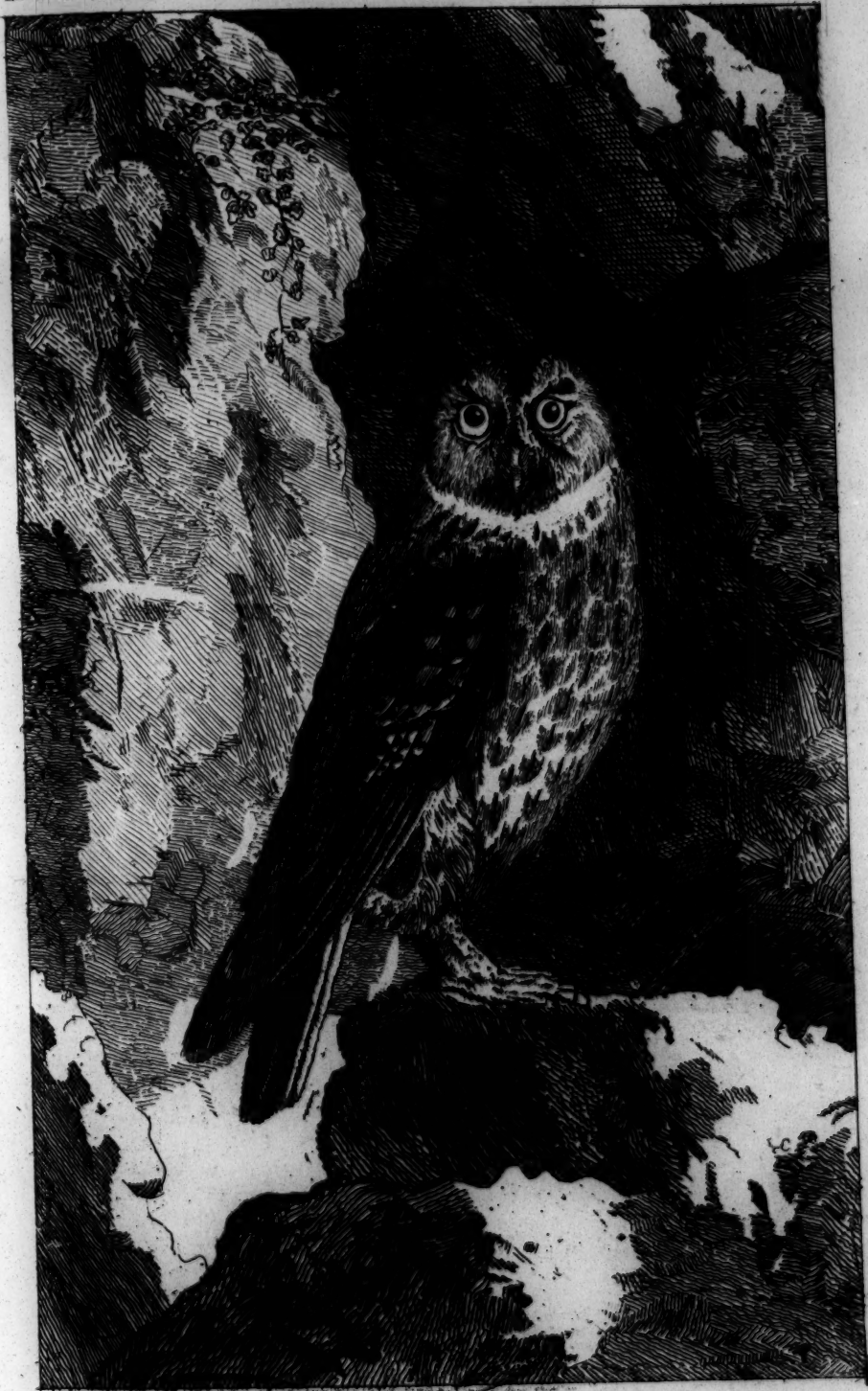
Gesner, Aldrovandus, and many other naturalists after them, have used the word *Strix* to distinguish this species; but I believe that they

* i. e. The Hooting Cat.

† In Greek, *Γλαυξ*, from *γλαυκος*, sea-green, on account of its colour; in Latin, *Noctua*, being a nocturnal bird; in German, it is termed *Milch Sanger* (Milk Singer), *Kinder* (the Child), *Melcker* (the Milker), and *Stock-Eule* (the Stick Owl).

are

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THE TAWNY OWL.

E  L

are mistaken, and that the term ought only to be applied to the White Owl. *Strix* taken in this sense, as denoting a bird of night, must be considered as rather a Latin than a Greek word. Ovid gives its etymology, and marks with sufficient precision to which of the Nocturnal Birds it ought to be referred, in the following passage :

———Strigum

Grande caput, stantes oculi, rostra apta rapinæ,
Canities pennis, unguibus hamus inest.
Est illis strigibus nomen ; sed nominis hujus
Causa quod horrenda stridere nocte solent *.

A large head, fixed eyes, a bill fitted for rapine, hooked nails, are characters common to all these birds ; but the whiteness of the plumage, *canities pennis*, belongs more properly to the White Owl than to any other ; but what in my opinion decides the question is, that the word *stridor*, which in Latin expresses a grating noise resembling that of a saw, marks precisely the cry *grē, grēi* of the White Owl ; whereas the cry of the Tawny Owl is rather a loud hallooing than a creaking noise.

* Thus translated by Massey—

“ Large is their head, and motionless their eye,
Hook-billed, sharp-clawed, and in the dusk they fly.

* * *

Screech-Owls they're called ; because with dismal cry,
In the dark night, from place to place they fly.”

Trist. lib. vi. *sub init.*

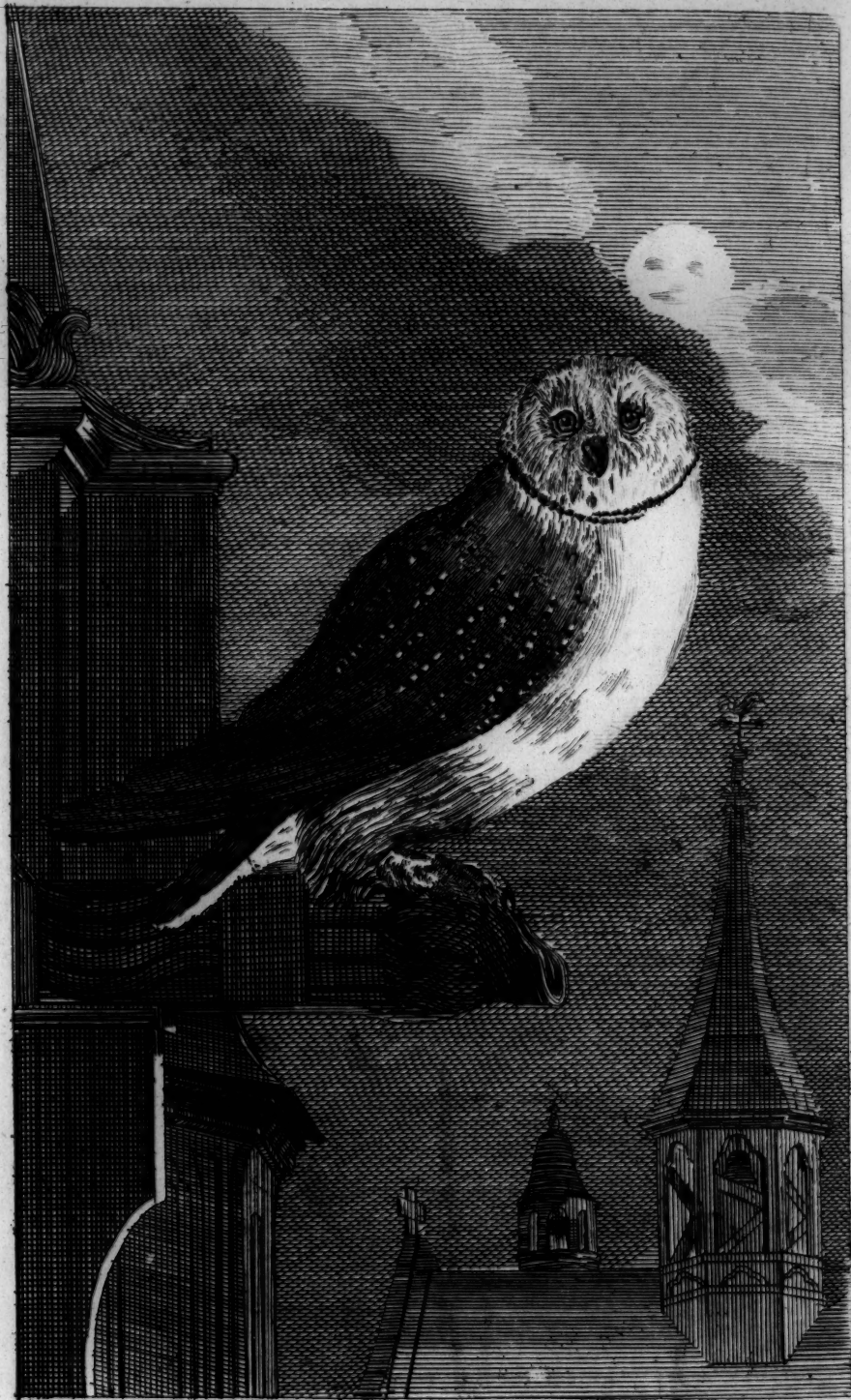
The Tawny Owls are scarcely found any where but in the woods. In Burgundy they are more common than the Alucos; they lodge in hollow trees, and I have received some in the severest winters; which fact seems to prove that they are stationary in the country, and seldom approach the habitations of men. Frisch gives the Tawny Owl as a variety of the species of Aluco, and takes the male for another variety; but if we admit this classification, we must destroy invariable characters, which seem to be numerous and distinct.

The Tawny Owl is found in Sweden and other northern countries, and hence it has migrated into the continent, or is found in America, even between the tropics. There is in the cabinet of Mauduit a Tawny Owl, which he received from St. Domingo, and which seems to be a variety of the European species, differing only by the uniformity of the colours of its breast and belly, which are ferruginous, and almost spotless, and by the deeper shades of the upper part of the body. [A]

[A] The specific character of the Tawny Owl, or *Strix Stridula*, LINN. is,—“Its head is smooth, its body ferruginous, and the third feather of the wing longer than the rest.” It inhabits the more southern deserts of Europe and Tartary; and even in England, it is pretty frequent in the woods. It breeds in the rook’s nests. It is not found in Siberia. Weighs nineteen ounces.

B¹L

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THE WHITE OWL .

The WHITE OWL.

L'Effraie, ou La Fresaie, Buff.

Strix Flammea, Linn. Gmel. Mull. and Bor.

Aluco, Briff. Ray, Brun. and Klein.

Aluco Minor of Aldrovandus, Will.

Tuidara, Marcgr.

Schlaffer Eule, Perle-Eule, Frisch.*

THE White Owl alarms the timid by its blowing notes, *shē, shēi, shēiē*; its sharp doleful cries, *grēi, grē, crēi*, and its broken accents which often disturb the dread silence of night. It is in some degree domestic; it inhabits the most populous towns, towers, belfries, the roofs of churches, and other lofty buildings, which afford it retreat during the day. It leaves its haunts about twilight, and continually repeats its blowing, which resembles the snoring of a man which sleeps with his mouth open. When it flies or alights, it utters also different sharp notes, which are all so disagreeable, that, joined to the awfulness of the scene, re-echoed from the tombs and the churches in the stillness and

* The Greek name *ελεος* is perhaps taken from the same word, which signifies *pity*, alluding to its mournful cries; the German appellations allude to its figure and manner of living; *Schleyer-Eule*, Veiled Owl; *Perle-Eule*, Pearled Owl; *Kirch-Eule*, Church Owl; and *Schlaffer Eule*, the Sleepy Owl.

dark-

darkness of night, inspire dread and terror in the minds of women and children, and even of men who are under the influence of the same prejudices, and who believe in omens and witches, in ghosts and apparitions. They regard the White Owl as a funereal bird, and the messenger of death; and they are impressed with an idea, that if it perches upon a house, and utters cries a little different from ordinary, it then summons the inhabitant to the tomb.

It is readily distinguished from the other Earless Owls, by the beauty of its plumage; it is nearly of the same size with the Tawny Owl, smaller than the Aluco, and larger than the Brown Owl, of which we shall treat in the following article. Its extreme length is a foot, or thirteen inches; its tail measures only five inches; the upper part of its body is yellow, waved with gray and brown, and sprinkled with white points; the under part white, marked with black spots; the eyes regularly encircled with white feathers, so slender that they might be taken for hairs; the iris is of a fine yellow, the bill white, except the end of the hook, which is brown; the legs covered with white down, the claws white, and the nails blackish. There are others which, though of the same species, seem at first to be very different; in some the breast and belly are of a fine yellow, sprinkled with the same black points; in others they are perfectly

perfectly white ; in others they are yellow, and without a single spot.

I have had several alive. They are easily caught, by placing a small net at the holes where they lodge in old buildings. They live ten or twelve days in the cages where they are shut, but they reject all sustenance, and die of hunger. They continue motionless during the day, but mount the top of the roost in the night, and whistle the note *shē, shēi*, by which they seem to invite the others ; and indeed I have often seen them attracted by the calls of the prisoner, alight near the cage, make the same whistling noise, and allow themselves to be caught in the net. I never heard them when confined utter the grating cry (*stride*) *crēi, grēi* ; this sound is given only in the flight, when they are in perfect freedom. The female is somewhat larger than the male, and the colours of its plumage are lighter and more distinct ; and of all the nocturnal birds its plumage is the most beautifully varied.

The species of the White Owl is numerous, and very common in every part of Europe. It is also found through the whole extent of the continent of America. Marcgrave found it in Brasil, where the inhabitants call it *Tuidara*.

The White Owl does not, like the Aluco and the Tawny Owls, deposit its eggs in the nests of other birds. It drops them in the bare holes of walls, or in the joists of houses, and also in the hollows of trees ; nor does it spread roots or leaves

leaves to receive them. It begins early in the spring, in the end of March, or the beginning of April. It lays five eggs, sometimes six or seven, of a longish shape, and whitish colour; it feeds its young with insects and fragments of mice. They are white at first, and are not an unpleasant meal at the end of three weeks, for they are fat and plump. Their parents clear the churches of the mice; frequently drink or rather eat the oil from the lamps, especially when it has congealed; swallow mice and small birds whole, vomiting afterwards the bones, feathers, and skin. Their excrements are white and liquid like those of the other birds of prey. In fine weather, most of these birds visit the neighbouring woods in the night, but return to their usual haunts in the morning, and there slumber and snore till dark, when they fall from their holes, and fly tumbling almost to the ground. In the severe seasons five or six are sometimes discovered in the same hole, or concealed in the fodder, where they find shelter, warmth, and food; for the mice are more plentiful then in the barns than at any other time. In autumn they often pay a nightly visit to the places where the springs are laid for the wood-cocks and thrushes; they kill the wood-cocks, which they find hanging, and eat them on the spot; but they sometimes carry off the thrushes and other small birds that are caught, often swallowing them entire with their feathers, but generally when they

they are larger, plucking them previously.— These instincts, and that of flying sideways with rustling wings, are common to the White, the Aluco, and the Tawny Owls. [A]

[A] The specific character of the *White Owl*, *Strix Flammea*, LINN. is, that “its head is smooth, its body yellowish, with white points; below it is whitish, with blackish points.” It is common in England. It is found through Europe and America, but not farther north than the latitude of Sweden. In Tartary it receives divine honours, from a tradition that it was instrumental in saving the Emperor Zingis Khan; and even at present, the Kal-mucks have retained the custom of wearing a plume of its feathers on great festivals.

The BROWN OWL*.

Le Chouette, ou La Grande Chevêche, Buff.

Strix Ulula, Linn. Gmel. Mull. and Georgi.

Ulula Flammeata, Frisch.

Strix Cinerea, Ray, Will. and Browlk.

Noctua Major, Briss.

Noctua Saxatilis, Gesn. and Aldrov.

Grey Owl, Will.

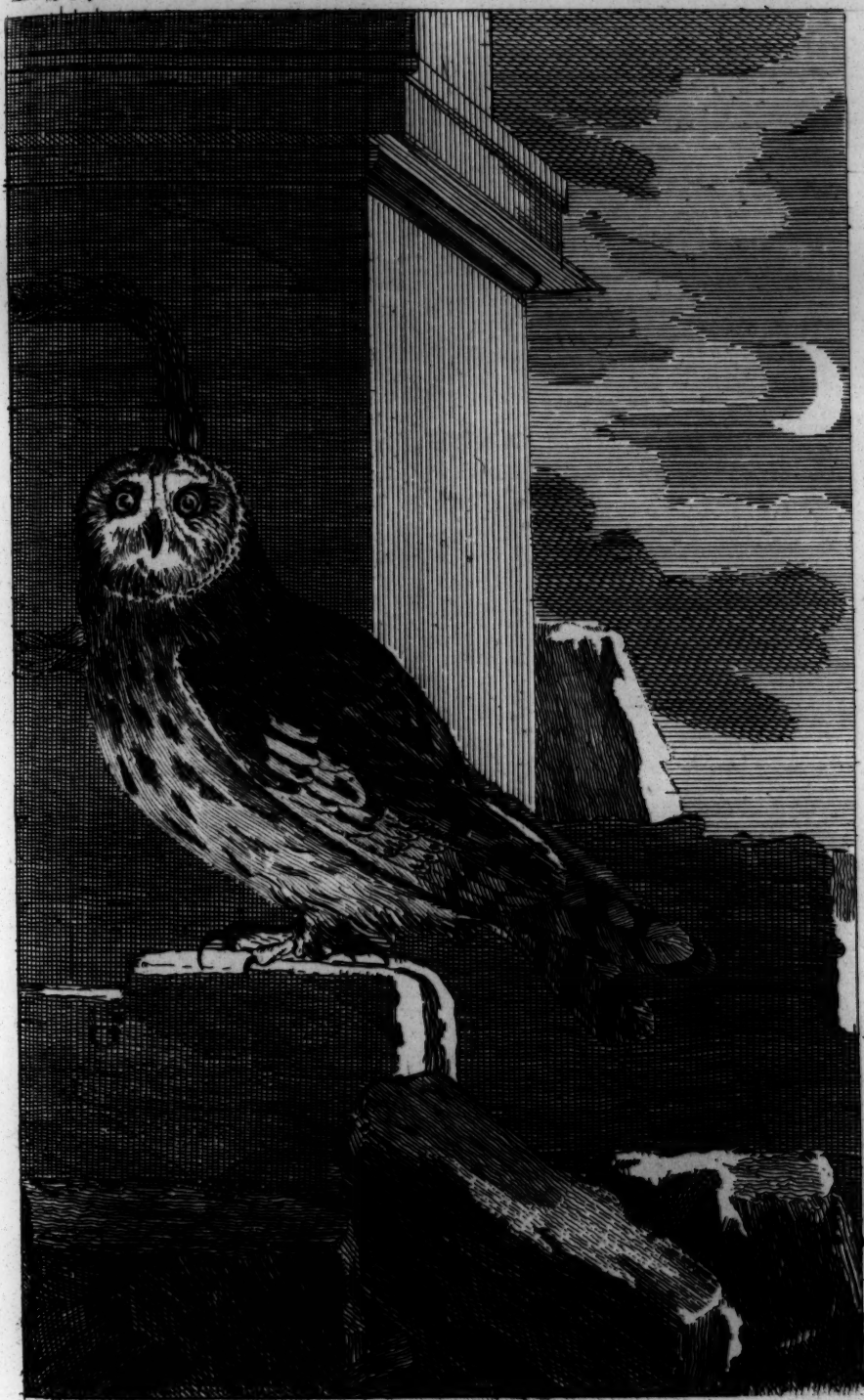
Great Brown Owl, Alb.

THIS species is pretty common, but does not frequent our habitations so much as the White Owl. It haunts quarries, rocks, ruins, and deserted edifices; it even prefers mountainous tracts, craggy precipices, and sequestered spots; but it never resorts to the woods, or lodges in hollow trees. The colour of its eyes, which is a bright yellow, distinguishes it from the Aluco and the Tawny Owls. The difference is more slight between it and the White Owl; because in both, the iris is yellow, surrounded with a circle of small white feathers; the under-part of the belly is tinged with yellow; and their size is nearly the same. But the Brown Owl is of a deeper colour, marked with larger spots resembling small flames; whereas

* Perhaps its Greek name *Αιγώλιος* is from *Αιξ*, *αίγος*, a goat, because like that animal it is fond of rocks.—The appellation in German is *Stein-Eule*, for the same reason. In Polish, it is called *Sowa*.

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N^o 27.



THE BROWN OWL.

B  L

those of the White Owl are only little points or drops ; hence the former has been termed *Noctua Flammeata*, and the latter *Noctua Guttata*. The feet of the Brown Owl are closely covered with feathers, and the bill is brown ; while the bill of the White Owl is whitish, and brown only near the tips. In this species also, the plumage of the female is marked with smaller spots than the male, and its colours are more dilute. Belon considers the White Owl as allied to the Little Owl ; and indeed they bear a resemblance in their figure and instincts ; and in German they both have the generic name *Kautz* (*Coot*). Salerne informs us, that in the province of Orleans the labourers have a great esteem for this bird, because it destroys the field-mice ; that in the month of April it utters day and night the sound *goo* in a soft tone ; but before rain it changes this note into *goyong* ; that it builds no nest, and lays only three eggs, which are entirely white, perfectly round, and about the size of those of a wood-pigeon. He adds, that it lodges in hollow trees, and that Olina was grossly mistaken when he asserted that it hatches in the two last months of winter. The last circumstance, however, is not far from the truth ; for this bird, and those of the same kind, lay their eggs in March, and the incubation must take place about the same time. Nor is it caught in hollow trees, but, as we have already said, it haunts the rocks and caverns. It is considerably

siderably smaller than the Aluco, and even than the Tawny Owl, its extreme length being only eleven inches.

It appears that this Brown Owl which is common in Europe, especially in the hilly countries, is also found in the mountains of Chili; and that the species described by Father Feuillée by the epithet of *Rabbit*, because it was discovered in a hole in the ground, is only a variety of the European kind, differing by the distribution of its colours. If indeed it had made the excavation itself, as Father Feuillée imagines, we must consider it as entirely distinct from any Owl even of the ancient continent*. But such a supposition is unnecessary; it is most likely that, guided by instinct, it only crept into holes which it found already formed. [A]

* Father du Tertre, speaking of a nocturnal bird called the *devil* in our American islands, says, that it is as large as a duck; that its aspect is hideous; its plumage mixed with white and black; and that it lives on the highest mountains; that it *burrows* like a rabbit in the holes which it makes in the ground, where it lays its eggs, hatches, and raises its young. . . . that it never descends from the mountains, except in the night; and, when it is on the wing, it utters a melancholy frightful cry.—This is certainly the same bird with the one mentioned by Feuillée, and with the Brown Owl.

[A] The specific character of the Brown Owl, or *Strix Ulula*, given by Linnæus, is, “That the upper part of its body is dusky, with white spots; the tail-feathers inscribed with white lines.”—The description of Latham is more accurate and complete: “Its head is smooth; the upper part of the body is tawny, with dusky longitudinal spots; below whitish with dusky lines; the tail marked with dusky bars.” It is fifteen inches and a half long, and weighs fourteen ounces. It is not common in England. It includes two
varie-

varieties: 1. *The Arctic Owl, Strix Artica*, of which the body is ferruginous above, with black spots; and the orbits, the bill, and a bar under the wings, are black. It inhabits the northern parts of Sweden. It is eighteen inches long.—2. *The Caspian Owl, Strix Accipitrina*, of which the upper part of the body is slightly yellowish; and below it is yellowish white, with blackish longitudinal spots. It inhabits the Caspian Sea, the southern parts of Russia and Tartary, and occupies deserted nests,

The LITTLE OWL*.

La Chevêche, ou Petite Chouette, Buff.

Strix Passerina, Linn. Gmel. Scop. Brun. Mul. Kram, &c.

Noctua Minor, Ray, Will. and Klein.

La Civetta, Olin. and Zinn.

THE Little Owl and the Scops Owl are nearly of the same size, both being the smallest of the genus. They are seven or eight inches long from the point of the bill to the claws, and not larger than a blackbird; but they are still a distinct species; for the Scops is furnished with very short slender tufts, consisting of a single feather on each side of the head, which are entirely wanting in the Little Owl: besides, the iris is of a paler yellow, the bill brown at the base, and yellow near the point; but that of the Scops is entirely black. It may be readily distinguished by the difference of colours, by the regular disposition of the white spots on the wings and the body, by the shortness of its tail and wings, and by its ordinary cry, *poōpoō, poōpoō*, which it constantly reiterates

* The Greeks and Romans seem to have had no name appropriated to this species; and probably they confounded it with the Scops Owl, or *Afio*. This is the case in the modern languages: both are termed *Zuetta* or *Civetta* in Italian; *Sechuxa* in Spanish; *Mochu* in Portuguese; *Kautzlein* in German; and *Szowa* in Swedish.

while

N^o 28.



THE LITTLE OWL .

B  L

while it flies; and another note which it has when sitting, and which resembles the voice of a young man, who repeatedly calls *aĩmě*, *běmě*, *ěsmě* *. It seldom haunts the woods; but its ordinary abode is among solitary ruins, caverns, and old deserted buildings, and it never lodges in hollow trees. In all these respects it resembles most the Brown Owl. Nor is it entirely a bird of night; but sees much better in the day than the other nocturnal birds, and even chases the swallows and other small birds, though with very little success. It is more fortunate in the search for mice, which it swallows, not entire, but tears them in pieces with its bill and claws; and it even plucks the birds neatly before it eats them; and in this instinct it differs from the other Owls. It lays five eggs, which are spotted with white and yellow, and constructs its rude, and almost bare nest in the holes of rocks, and old walls. Frisch observes, that this bird loves solitude, and haunts churches, vaults, and cemeteries, the residence of the dead; that it is sometimes called *Church-Owl*, *Corpse-Owl*; and that as it has been remarked to flutter about houses where there were persons dying, the superstitious people name it *the*

* Happening to sleep in one of the old turrets in the castle of Montbard, a Little Owl alighted on the window-frame, and before day-break, at three o'clock in the morning, awakened me with its cry, *běmě*, *ědmě*. As I was listening to this sound, which was the more remarkable as it was close beside me, I heard one of my servants who slept in the room over mine open the window, and deceived by the resemblance of the scream *ědmě*, call out, *Who's there below? my name is not Edme, it is Peter.*

bird of death, and imagine that it portends approaching dissolution. Frisch does not reflect that these gloomy images are connected only with the White Owl, and that the Little Owl is much more rare; that it hovers not about churches, nor has the plaintive moan or the piercing intimidating cry of the other. At any rate, if the Little Owl be reckoned *the bird of death* in Germany, it is the White Owl that is held ominous in France. The Little Owl which Frisch has figured, and which occurs in Germany, appears to be a variety of ours: its plumage is much darker, and its iris black. There is also a variety in the king's cabinet, which was sent from St. Domingo, and which is not so white on the throat, and whose breast and belly are regularly marked with brown transverse bars; while, in our Little Owl, the brown spots are scattered confusedly.

It may be proper to present a clear concise view of the distinguishing characters of the five species of Earless Owls, of which we have treated. 1. The Aluco is the largest; its eyes are black; it may be termed *The Large Black Earless Owl with Black Eyes*. 2. The Tawny Owl is much smaller than the Aluco; its eyes blueish; its plumage rusty, tinged with iron-grey; the bill greenish white; and may be named *The Rusty and Iron-grey Earless Owl*

Owl with Blue Eyes. 3. The White Owl is nearly of the same size with the Tawny; its eyes yellow; its plumage whitish yellow, variegated with very distinct spots; the bill white, and the end of the hook brown; and may be called *The White or Yellow Earless Owl with Orange-Eyes.* 4. The Brown Owl is not so large as the Tawny or White, but nearly as thick; its plumage brown; its eyes of a fine yellow; its bill brown; and may be termed *The Brown Earless Owl, with Yellow Eyes and a Brown Bill.* 5. The Little Owl is much smaller than the others; its plumage brown, regularly spotted with white; its eyes pale yellow; its bill brown at the base, and yellow at the point; and may be called *The Little Brown Earless Owl, with Yellowish Eyes, and a Brown and Orange Bill.*

These characters apply in general; but, as in every other part of Nature, they are sometimes liable to considerable variations, especially in the colours; enough, however, has been said to distinguish them from each other. [A]

[A] The specific character of the Little Owl, *Strix Passerina*, is "That its head is smooth, and the feathers of its wings marked with five orders of spots." It is very rare in England. In North America it is found from Hudson's-bay to New York, and called by the Esquimaux *Shipmospitl*. They build always in the pines, and in the middle of the tree, and lay two eggs; remain solitary in their retreat in the day, but are active in the search of their prey during the night.

FOREIGN BIRDS, WHICH RESEMBLE THE OWLS.

I.

THE bird named *Caboor* by the Indians of Brazil, which has tufts of feathers on its head, and which is not larger than the Juniper Thrush. These two characters sufficiently shew it as a species of the Scops, if not a variety of the same species. Marcgrave is the only person who has described it, but he gives no figure of it; it is a kind of Owl, says he, of the size of a fieldfare; its head round; its bill short, yellow, and hooked, with two holes for the nostrils; the eyes beautiful, large, round, and yellow, with a black pupil; under the eyes, and on the side of the bill, are long brown hairs; the legs are short, and they, as well as the feet, are clothed completely with yellow feathers; the toes commonly four in number, with nails that are femilunar, black and sharp; the tail broad, the wings terminating at its origin; the body, the back, the wings, and the tail, are of a pale dusky colour, marked on the head and neck with very small white spots, and on the wings with larger spots of the same colour; the tail is waved with white; the breast and belly of a whitish-grey, clouded with light brown. Marcgrave adds,
that

that this bird is easily tamed ; that it can bend its head, and stretch its neck so much as to touch with the point of its bill the middle of its back ; that it frolics with men like a monkey, and makes several antic motions ; that it can erect the tufts on the sides of its head so as to represent small horns or ears ; and that it feeds upon raw flesh. This description proves that it approaches nearly to the European Scops ; and I am almost inclined to believe that the same species inhabits the Cape of Good Hope. Kolben informs us, that the Owls of the Cape are of the same size with those in Europe ; that their feathers are partly red, partly black, with a mixture of grey spots, which give them a beautiful appearance ; that several Europeans who live at the Cape tame them, and allow them to run about their houses, and employ them for destroying the mice. Though this description be not so complete as that of Marcgrave, and does not warrant an absolute conclusion, there is, however, a strong presumption from the resemblance of the properties of these birds, and from the similarity of the climates of Brazil and the Cape of Good Hope, that the two Owls are of the same species. [A]

[A] The *Cabure* is the *Brazilian-eared Owl* of Latham ; the *Strix Brasiliensis* of Gmelin ; the *Asio Brasiliensis* of Brisson ; the *Noctua Brasiliensis* of Ray ; and the *Ulula Brasiliensis* of Klein. Its specific character : " Its head eared ; its body dusky-ferruginous, spotted with white ; below whitish, with dusky ferruginous spots ; the tail-feathers striped with white."

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II.

The bird of Hudson's Bay, called in that part of America *Caparacoch*; of which Edwards has given an excellent description and figure, and which he has named, *The Little Hawk-Owl*, because it participates of the nature of both these birds, and seems to be an intermediate shade. It is scarcely larger than the *Sparrow-hawk*, and the length of its wings and tail give it a similar appearance. The shape of its head and feet however shews, that it is more nearly allied to the genus of Owls; but it flies and catches its prey in broad day, like the other rapacious diurnal birds. Its bill is like that of the *Sparrow-hawk*, but not cornered on the sides; it is glossy and orange-coloured, covered almost entirely with hairs, or rather small ragged grey feathers, like most of the Owls; the iris is orange, the eyes encircled with white, and shaded with a little brown, speckled with small longish dusky spots, and on the outside of this white space is a black ring, which extends as far as the ears; beyond this black circle there is again some white; the crown of the head is deep brown, mottled with small white round spots; the arch of the neck and its feathers, as far as the middle of the back, are of a dull brown, edged with white; the wings are brown, and elegantly spotted with white; the scapular feathers are barred transversely with white and brown; the three feathers next the

the body are not spotted, but only bordered with white; the lower part of the back and the rump are of a deep brown, with transverse stripes of lighter brown; the lower part of the throat, the breast, the belly, the sides, the legs, the rump, and inferior coverts of the tail, and the smaller inferior coverts of the wings, are white, with brown transverse ribs, but the larger coverts of the wings are of an obscure ash-colour, with white spots on the two edges; the first of the quill-feathers of the wing is entirely brown without the least spot or border of white, and is not in the least like the rest of the quill-feathers, as may be remarked also in the other owls; the feathers of the tail are twelve in number, of an ash-colour below, and a dull brown above, with white narrow transverse bars; the legs and feet are covered with fine soft feathers, white like those of the belly, barred with shorter and narrower brown lines; the nails are hooked, sharp, and of a deep brown colour. [A]

Another individual of the same kind was a little larger, and its colours more dilute, which affords a presumption, that what has been described is a male, and the other a female. They were brought from Hudson's Bay to Edwards, by Light.

[A] This is *Strix Funerea* of Linnæus and Muller, and the *Strix Canadensis* of Brisson, and the *Canada Owl* of Latham. It flies high like a hawk, and preys by day upon the White Grouse. It attends the fowler, and often steals the game before he has time to pick it up. It is found in North America, in Denmark, and Sweden, and is very frequent in Siberia.

III.

The H A R F A N G.

This bird inhabits the northern parts of both continents, and is known by this name in Sweden. It is not furnished with tufts on the head, and it is still larger than the Great-eared Owl. Like most northern birds, its colour is snowy-white. But we shall borrow the excellent description which Edwards has given of this rare bird, which we could not procure.

“ The Great White Owl,” says this author,
“ is one of the largest of the Nocturnal Birds
“ of Prey, and at the same time it is the most
“ beautiful, for its plumage is white as snow:
“ its head is not so large in proportion as that
“ of the Owls ; its wings when spread, measure
“ sixteen inches from the shoulder to the end of
“ the longest feather, which may give an idea of
“ its bulk. It is said to prey in open day upon
“ the White Grouse about Hudson’s Bay, where
“ it remains the whole year. Its bill is hooked
“ like a hawk’s, and has no corners on the edges ;
“ it is black, and perforated with wide nostrils, and
“ is also almost entirely covered with stiff feathers,
“ similar to the bristles at the base of the bill, and
“ reflected outwards. The pupil is encircled by
“ a brilliant-yellow iris ; the head, the body,
“ the wings, and the tail are marked with small
“ brown

“ brown spots. The higher part of the back
 “ is transversely barred with some brown lines,
 “ the sides below the wings are also barred in
 “ the same manner, but by narrower and lighter
 “ lines: the great feathers of the wings are spot-
 “ ted with brown on their outer edges; there
 “ are spots also on the coverts of the wings,
 “ but the inferior coverts are pure white. The
 “ legs and feet are covered with white feathers;
 “ the nails are long, strong, black, and very
 “ sharp.” “ I have another specimen of the same
 “ bird, (Edwards subjoins,) “ in which the spots
 “ are more frequent, and the colour more in-
 “ tense.”

This bird is common in the country about Hudson's Bay; but it seems to be confined to the northern tracts; for in the New Continent it is very rare; in Pennsylvania and in Europe it never appears farther south than Dantzick. It is almost white, and spotless in the mountains of Lapland. Klein informs us, that it is named *Hûrfang* in Sweden, and *Weissebunte Schlichteteule* (i. e. White-chequered Smooth Owl) in Germany, and that he had in Dantzick a male and female alive for several months in 1747*. Ellis

* *White Owl with earthy spots.* *Hûrfang*, Swed.; *Weissebunte Schlichteteule*, Germ. On the 3d January 1747, I gave a stuffed specimen to the cabinet of the Society of Gûar. When alive it weighed three pounds and a half. The length from the point of the bill to the end of the tail was one ell and a sixteenth, the alar extent two and three-fifths; the bill and nails black; the cheeks, the lower part of the wings, the rump and the legs covered with a milky shag; the upper part of the body varbled with white and cinereous.

relates

relates that this bird and the Great-eared Owl are frequent in the tracts near Hudson's Bay: it is, says he, of a dazzling white, hardly distinguishable from snow; it appears the whole year, flies often in open day, and hunts white partridges (*grouse*). On the whole, therefore, the Harfang, which is the largest of all the Owls, is most frequent in the northern regions*, and probably avoids the heats of the south. [A]

* We have seen that it inhabits Lapland, Sweden, and the North of Germany: it is also found in Pennsylvania and Hudson's Bay, probably in Iceland; for Anderson has given a figure of it in his description of Iceland; and though Horrebow, who has criticised that work, asserts that no kind of Owl is found there, yet this ought not to be admitted upon the single credit of one whose principal aim it seems is to contradict Anderson.

[A] This is the *Strix Nyctea* of Linnæus, &c. the *Ulula Alba* of Klein, the *White Owl of Hudson's Bay* of Brisson, the *Great White Owl* of Edwards, and the *Snowy Owl* of Pennant and Latham.—The specific character, "the head smooth, the body whitish, with dusky lunar spots dispersed."

IV.

The CAYENNE OWL†.

Le Chat-huant de Cayenne, Buff.

Strix Cayanensis, Gmel.

This bird has been described by no naturalist. It is of the size of the Tawny Owl, from

† Specific character: "The body striated with rufous, waved transversely with dusky colour; the irides yellow."

which

which it differs by the colour of its eyes, which are yellow ; so that it is perhaps equally related to the White Owl, but really differs from both. It is particularly remarkable for its rufous plumage, waved transversely with brown narrow lines, not only on the breast and belly, but even on the back ; its bill is of a flesh colour, and its nails black.—This description, with the inspection of the figure, will be sufficient to recognise it.

V.

The CANADA OWL*.

La Chouette, ou Grande Chevêche de Canada, Buff.
Strix Funerea, Linn.

This is considered by Brisson as a specimen of the Tawny Owl, but it appears to be more allied to the Brown. It differs from the latter, however, because its breast and belly are marked with regular brown cross bars ; and this singular property is also observed in the Little Owl of America.

* Specific character :—" The head smooth, the body dusky spotted with white, streaked below with white and dusky, the wing feathers variegated with white spots, the tail feathers streaked with white." Its length seventeen inches, and its alar extent two feet. It weighs twelve ounces.

VI. The

VI.

The SAINT DOMINGO OWL*.

La Chouette, ou Grande Cheuêche de Saint-Domingue, Buff.
Strix Dominicanus, Gmel.

This bird was sent us from St. Domingo, and seems entirely a new species. It is the nearest related to the Brown European Owl. Its bill is larger, stronger, more hooked than that of any other Earless Owl. It differs from the Brown Owl in another circumstance also; its belly is of a rusty uniform colour, and there are only some longitudinal spots on the breast; whereas the Brown Owl of Europe is marked on the breast and belly with large oblong pointed spots, which has given occasion to the name of *Flaming Owl*. *Noctua flammeata*.

* Specific character:—"The head smooth, the abdomen rufous, the breast marked with straggling longitudinal spots."

B I R D S

WHICH HAVE NOT THE POWER OF FLYING.

FROM the light birds which soar in the region of the clouds, we pass to those that are borne down by their weight, and cannot rise from the surface. Our transition is sudden; but knowledge is acquired in the mode of comparison, and the opposition and contrast will throw additional light on the history of the winged race. Indeed, without examining closely the end of the chain, we cannot distinguish the intermediate links. When Nature is displayed in her whole extent, she presents a boundless field, where the various orders of being are connected by a perpetual succession of contiguous and resembling objects: but it is not a simple uniform series, it ramifies at intervals in all directions; the branches from different parts bend, and run into each other, and these flexions and this tendency to unite, are most remarkable near the extremes. We have seen in the class of quadrupeds, that one end of the chain stretches to the tribe of birds in the different kinds of bats, which like these have the power of flying. The other end of the chain, we have perceived, descends to the order of whales, in the seal, the

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wallrus,

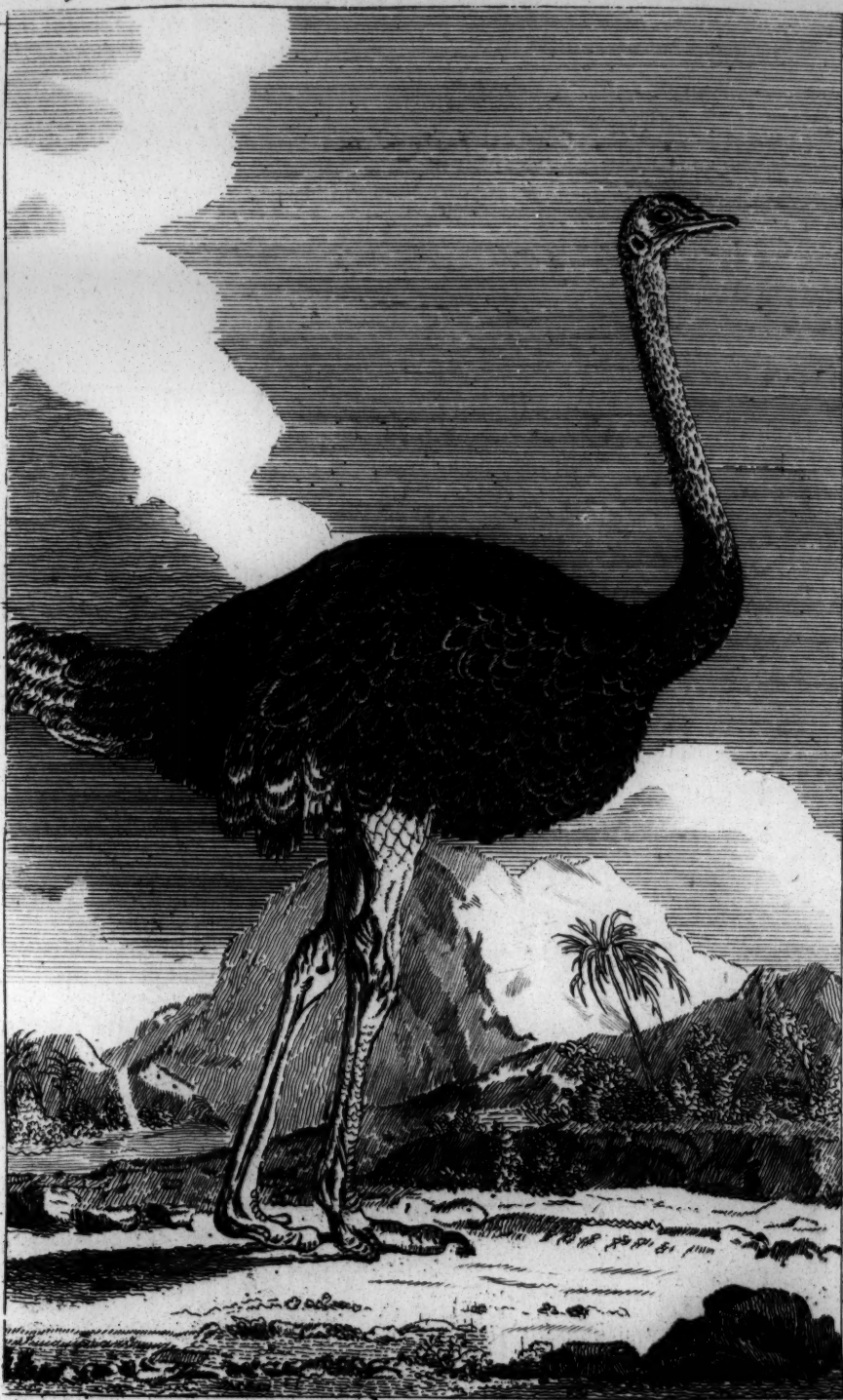
wallrus, and the *manati*: another branch was observed rising from the middle, and connecting the monkey to man by the intermediate links of the baboon, the pigmy-ape, and the orang-utang. On the one side, a shoot bending through the *ant-eaters*, the *phatagins*, and the *pangolins*, which resemble in shape the crocodiles, the *inguana*, and the lizzards, unites the reptiles to the quadrupeds; on the other, through the *tatous*, whose body is completely sheathed in a bony covering, it approaches the crustaceous animals. It will be the same with respect to the band which connects the numerous order of birds; if we place its origin in those birds which shoot nimbly with light pinions through the mid-way air, it will gradually pass through various minute shades, and at last terminate in those which are oppressed with their weight, and destitute of the instruments necessary to impel their aërial course. The lower extremity will be found to divide into two branches; the one containing terrestrial birds, as the Ostrich, the Touyou, the Cassowary, and the Dodo, which cannot rise from the ground; the other including the Pinguins and other aquatic birds, which are denied the use, or rather the residence of earth and air, and which never leave the surface of the water, their proper element. Such are the ends of the chain; and we ought to examine these with attention before we venture to survey the intermediate links, in which the proper-

ties of the extremes are variously blended. To place this metaphysical view in its proper light, and to elucidate the ideas by actual examples, we ought, immediately after treating of quadrupeds, to begin the Natural History of the Birds which are the nearest related to these animals. The Ostrich resembling the camel in the shape of its legs, and the porcupine in the pipes or prickles with which its wings are armed, ought to be ranged next the quadrupeds. But philosophy must often yield to popular opinions; the numerous herd of naturalists would exclaim against this classification, and would regard it as an absurd innovation, proceeding merely from the love of singularity and contradiction. But besides the general resemblance in size and outward appearance, which alone ought to place it at the head of the winged race, we shall find that there are many other analogies to be found in the internal structure; and that being almost equally related to the birds and to the quadrupeds, it must be considered as the intermediate shade.

In each series or chain which connects the universal system of animated nature, the branches which extend to the subordinate classes are always short, and form very small *genera*. The birds that are not fitted to fly, consist only of seven or eight species; the quadrupeds that are able to fly, amount but to five or six. The same remark may be applied to the other lateral

ramifications. These are fugitive traces of nature, which mark the extent of her power, which set defiance to the shackles of our systems, and burst from the confinement of our narrow circle of ideas.

Nº 29



THE OSTRICH . .

The OSTRICH*.

L' Autruche, Buff.

Struthio Camelus, Linn. Gmel. Will. Briff. &c.

The Black Ostrich, Alb. Sparr. Lath. &c.

THE Ostrich was known in the remotest ages, and mentioned in the most ancient books. It is frequently the subject from which the sacred writers draw their comparisons and allegories †. In still more distant periods, its flesh

* The Greek appellation Στρουθοκαμηλος, or simply Στρουθος, is derived from στρουθος, which signifies a *sparrow*, or a bird in general; and καμηλος, a *camel*; on account of the resemblance which the Ostrich bears to that quadruped. The same terms were introduced into Latin; *Struthocamelus*, and sometimes *Struthio*. In Hebrew it was called *Jacuah*; in Arabic, *Neamah*; in Spanish it is now termed *Ave-Struz*; in Italian, *Strutzo*; in German, *Straufs*.

Linnaeus ranges the Ostrich, the Galeated Cassowary, and the Touyou, in the same genus *Struthio* among the *Gallinae*. The specific character of the Ostrich is, that it has three toes. Mr. Latham in his last work, *Index Ornithologicus*, has very properly formed another order, that of *Struthiones*, inserted after the *Grallae*, and which contains the genera of the Dodo, the Touyou, the Cassowary, and the Ostrich. The character of the last: that its *bill* is straight, depressed and rounded at the end; the *wings* short, and useless for flying; the *thighs* naked above the knees; and two toes both turned forward.

† *Ostriches shall dwell there, and the Satyrs shall dance there.* ISAIAH, xiii. 21.

Even dragons draw out the breasts, and give suck to their young; but the daughters of my people become cruel like the Ostriches in the wilderness. LAMENTAT. iv. 3.

I will make lamentation like the dragons, and mourning like the Ostriches. MICAH, i. 8.

seems to have been commonly used for food; for the legislature of the Jews prohibits it as unclean *. It occurs also in Herodotus †, the most antient of profane historians, and in the writings of the first philosophers who have treated of the history of Nature: how indeed could an animal so remarkably large, so strangely shaped, and so wonderfully prolific, and peculiarly fitted for the climate, as the Ostrich, remain unknown in Africa and part of Asia, countries peopled from the earliest ages, full of deserts indeed, but where there is not a spot that has not been trodden by the foot of man?

The family of the Ostrich, therefore, is of great antiquity; nor in the course of ages has

* “And these also shall have abomination among fowls. . . . the Ostrich also, and the Cormorant,” &c. LEVIT. xi. 13 & 16.

“But these are they whereof you shall not eat. . . . nor the Ostrich, nor the night-crow,” &c. DEUT. xiv. 12 & 15.

† Salerne is of opinion that Herodotus speaks of three kinds of Στρεβοι: the *aquatic*, or *marine*, which is the fish called plaice; the *aerial*, which is the sparrow; and the *terrestrial* (Καλαρυαιος) which is the Ostrich. I can discover only the last, and I should render the epithet Καλαρυαιος differently, *subterranean*; not that I believe in the existence of such Ostriches; but Herodotus is there describing the singular productions peculiar to a certain region of Africa. The common Ostrich was unlikely to be selected, since the Greeks knew it was common in Africa; and the fancy or credulity of the ancient historian might create or assume those ideal beings.

Nor is it probable that so rich, so precise, and so finished a language as the Greek, would assign the generic name of Ostrich to a bird or a fish. If I were allowed to offer a conjecture, I should say that the *Aerial Struthos* was the Long-tailed Ostrich, which in several parts of Africa is at present called *The Flying Ostrich*; and I should suppose that the *Aquatic Struthos* was some heavy water-fowl whose wings were unfit for flying.

it varied or degenerated from its native purity. It has always remained on its paternal estate; and its lustre has been transmitted unsullied by foreign intercourse. In short, it is among the birds what the elephant is among the quadrupeds, a distinct race, widely separated from all the others by characters as striking as they are invariable.

The Ostrich is reckoned the largest of the birds; but it is deprived of the prerogative of the winged tribe, the power of flying. The one which Vallisnieri examined weighed, though it was very lean, fifty-five pounds, after the entrails were taken out; so that, allowing twenty pounds for these, and the fat that was wanting*, we may estimate the weight of an Ostrich when alive, and in tolerable habit, at seventy-five or eighty pounds. With what amazing force, then, must the wings, and the impelling muscles of these wings, have been endowed, to have been able to raise and suspend in the air so huge a mass? The power of Nature appears to the superficial observer as infinite; but when we examine closely the minute parts, we perceive that every thing is limited; and to discriminate with accuracy these limits, which the wisdom, and not the weakness, of Nature has prescribed, is the best method to

* Its two stomachs, after being properly cleaned, weighed only six pounds; the heart, with the auricles, and the trunks of the large vessels, was one pound seven ounces; the two pancreases one pound; the intestines, which are very long and thick, must be of considerable weight.

study her works and operations. In the present case, the weight of seventy-five pounds exceeds all the exertions of animal force to support it in the medium of the atmosphere. Other birds also which approach in size to the Ostrich, such as the *Thuiou*, the Cassowary, and the Dodo, are held down to the surface of the earth : but their weight is not the sole obstacle ; the strength of the pectoral muscles, the expansion of the wings, their favourable insertion, the stiffness of the quill-feathers, &c. would here be conditions the more necessary, as the resistance to be overcome is greater : but these requisites are entirely wanting ; for, to confine myself to the Ostrich, this bird has, properly speaking, no wings ; since the feathers inserted in the shoulders, instead of forming a compact body fit to make a powerful impression upon the air, are divided into loose silky filaments, and the feathers of the tail are of the same downy texture ; nor can they admit the varying positions which are necessary for regulating their course. It is remarkable that in the Ostrich the feathers are all of the same texture ; whereas in most other birds, the plumage is composed of different kinds of feathers. Those next the skin are soft and woolly ; the coverts are closer and more solid ; and the quill-feathers, which are destined to perform the motions, are long and stiff. The Ostrich is, therefore, confined to the ground by a double chain ; by its great weight, and the structure of
its

its wings, it is condemned, like the quadrupeds, to traverse with labour the surface, and exiled from the region of the air ; and in both external and internal structure it bears great resemblance to these animals ; like them, the greatest part of its body is covered with hair rather than feathers ; its head and sides are almost naked ; and its legs, in which its strength chiefly consists, are thick and muscular ; its feet are strong and fleshy, resembling those of the camel, which differs from the other quadrupeds in that respect ; its wings, furnished with two pikes like those of the porcupine, are to be regarded rather as a kind of arms destined for its defence ; the orifice of the ear is uncovered, and only lined with hair in the inside at the auditory canal ; its upper eye-lid is moveable, as in almost all the quadrupeds, and is edged with long eye-lashes as in man, and in the elephant ; the general structure of the eyes is most analogous to what obtains in man, and they are so placed that both of them point to the same object. The parts near the bottom of the *sternum*, and near the *os pubis*, which, as in the camel, are callous, and destitute of hair or feathers, indicate its weight, and reduce it to a level with the humblest of the beasts of burden. Thevenot was so struck with the analogy between the Ostrich and the Dromedary, that he fancied he could perceive the hump on its back ; but, though the back is indeed arched, there is nothing similar to the fleshy

protuberance that occurs in camels and dromedaries.

If we proceed, from the survey of its external form, to examine its internal structure, we shall discover other properties which distinguish it from the birds, and new analogies which link it with the quadrupeds.

The head is very small *, flat, and composed of soft tender bones †, but the crown is hardened by a plate of horn. It is supported in a horizontal situation by a bony column near three feet in height, consisting of seventeen *vertebræ*. The body is commonly kept in the direction parallel to the horizon; the back is two feet long, formed by seven *vertebræ*, and with these are articulated on each side seven ribs, two false and five true; the last being double at their origin, and afterwards uniting into a single branch. A third pair of false ribs form the *clavicle*; and the five true ribs are connected by cartilaginous ligaments to the *sternum*, which descends not to the lower belly as in most birds, and which is less projecting; it resembles a buckler in shape, and is broader than even the *sternum* of a man. From the *os sacrum* arises a

* Scaliger remarks that many ponderous birds, such as the common cock, the peacock, the turkey, &c. have also a small head; but that most birds which excel in flight, whatever be their size, are furnished with a proportionally bigger head. SCAL. *Exercit. in Cardanum*.

† The anatomists of the Academy found a fracture in the cranium of one of the subjects which they dissected.

kind of tail, consisting of seven *vertebræ*, similar to those in man; the *os femoris* is a foot long; the *tibia*, and *tarsus*, a foot and a half each; every toe consists of three *phalanges* as in man, while other birds have seldom an equal number*.

The bill is rather small †, but opens wide; the tongue is very short, and destitute of *papillæ*. The *pharynx* is broad, proportioned to the aperture of the mouth, and would admit a body of the size of the fist. The *œsophagus* is also wide and strong, and terminates in the first ventricle, which in this bird performs three different functions; that of a craw, because it is the first; that of a ventricle, being partly muscular, and partly consisting of longitudinal circular fibres; and that of the glandulous protuberance, which generally occurs in the lower part of the *œsophagus* next the gizzard, since it is furnished with a great number of glands, conglomerated, and not conglobated, as in most other birds ‡. The first ventricle is situated below the second; so that what is generally termed the *superior orifice*, in regard to its place, is in this case really the inferior. The second ventricle is often divided from the first by a slight constriction; and sometimes it is besides formed into two cavities

* Paré and Vallisnieri.

† Brisson says, that the bill is unguiculated; Vallisnieri, that it is pointed obtusely without any hook. The tongue varies much in different subjects.

‡ *Mem. pour servir à l'Histoire des Animaux.*

by a similar constriction; but this division can never be perceived externally. It is covered with glands, and invested with a villous coat something like flannel, but with little adhesion, and perforated with an infinite number of small holes, corresponding to the orifices of the glands. It is not so strong as the gizzards of birds generally are; but it is strengthened externally by very powerful muscles, some of them three inches thick. Its outward form resembles much that of the human ventricle.

Du Verney pretends that the hepatic duct terminates in this second ventricle*, as happens in the tench, and many other fishes, and sometimes even in man, according to the observation of Galen†. But Ranby‡ and Vallisnieri affirm, that in several Ostriches which they examined, they always found the insertion of this duct in the *duodenum* two inches, one inch, and sometimes only half an inch below the *pylorus*. Vallisnieri also points out the origin of this mistake, if it be such, adding that in two Ostriches he traced a vessel from the second ventricle to the liver, which he first took for a branch of the hepatic duct, but afterwards discovered that it was an artery which conveyed blood to the liver, and not bile to the ventricle.

* *Hist. de l'Academie des Sciences*, 1694.

† In Vallisnieri.

‡ *Philosoph. Transact.* N° 386.

The *pylorus* varies in regard to its width in different subjects ; it is generally tinged with yellow, and, as well as the cavity of the second ventricle, is imbued with a bitter liquor. This is easily accounted for, because the hepatic duct takes its origin in the *duodenum*, and runs upwards.

The *pylorus* discharges itself into the *duodenum*, the narrowest of all the intestines, and in which are also inserted the two pancreatic ducts, a foot, and sometimes two or three feet, below the junction of the hepatic ; while in other birds the insertion is made close to the gall duct.

The *duodenum* and the *jejunum* are without valves ; the *ileon* is furnished with some, as it runs into the *colon*. These three small intestines are nearly half the length of the whole alimentary canal, which, in different subjects even of the same bulk, is subject to variation, being sixty feet in some, and only twenty-nine in others.

The two *cæca* rise from the beginning of the *colon*, according to the anatomists of the Academy ; or from the end of the *ileum*, according to Ranby. Each *cæcum* forms a kind of hollow cone two or three feet long, an inch wide at the base, and furnished in the inside with a valve in the form of a spiral plate, making near twenty revolutions from the bottom to the top, as in the hare, the rabbit, the sea-fox, the ray, the cramp-fish, and the thornback, &c.

The

The *colon* also is furnished with leaf-shaped valves, but which, instead of turning spirally, form a crescent that occupies rather more than half the circumference of the *colon*: so that the ends of the opposite crescents slightly overlap each other. And this structure also occurs in the *colon* of the monkey, and in the *jejunum* of man, and marks the intestine exteriorly with tranverse parallel furrows, about half an inch distant, and corresponding to the interior valves: but it is remarkable that these crescents do not occur through the whole length of the *colon*, or rather that the Ostrich has two very different *colons*; the one broad and about a foot long, furnished with leafy valves; the other, narrower, and totally destitute of valves, but extending to the *rectum*.

The *rectum* is very wide, about a foot long, and near its termination covered with fleshy fibres. It opens into a large bag or bladder consisting of membranes, the same as the intestines, but thicker, and sometimes containing even eight ounces of urine*. For the ureters make their discharge by a very oblique insertion, as in the bladder of land animals; and not only convey

* The urine of the Ostrich discharges ink-spots according to Hirmläus. The assertion may be false, but Gesner was mistaken in contradicting it, on the ground that no bird has urine. If this were admitted, of what use are the kidneys, and the ureters? The only difference in this respect between birds and quadrupeds is, that in the former the bladder opens into the *rectum*.

urine, but also the white glutinous matter that accompanies or envelopes the excrement in all birds.

This first bag, which wants only the neck to be a real bladder, communicates by an orifice furnished with a kind of *sphincter* with the second and last bag, which is smaller, and serves for the passage of the urine and the solid excrements; it is almost shut by a cartilaginous nut, adhering at its base to the junction of the *os pubis*, and cleft in the middle like that of the apricot.

The solid excrements are very like those of sheep and goats, being divided into little balls, whose bulk bears no relation to the capacity of the intestines where they are formed. In the small intestines, the appearance is like that of soup, sometimes green, sometimes black, according to the quantity of aliment, which acquires consistence as it approaches the thick intestines, but does not receive its shape until it enters the second *colon*.

Near the *anus* are sometimes found small sacs, somewhat similar to what occur in the same parts in lions and tigers.

The mesentery is transparent through its whole extent, and in some parts it is a foot broad. Vallisnieri pretends to have discovered in it manifest traces of lymphatic vessels: Ranby also says, that the vessels of the mesentery are very distinct, but adds, that its glands can hardly be perceived.

To most observers indeed they have been altogether invisible.

The liver is divided into two great lobes, as in man, but it is placed nearer the middle of the hypochondriac region, and has no gall bladder. The spleen is contiguous to the first stomach, and weighs at least two ounces.

The kidneys are very large, seldom parted into several lobes as in other birds, but oftener shaped like a guitar, with a broad belly.

The ureters never creep along the kidneys as in most other birds, but penetrate into their substance.

The *epiploon* is very small, and only covers a part of the ventricle ; but in its stead we find over all the belly, and sometimes on the intestines, a coat of fat or tallow spread between the *aponeuroses* of the muscles of the abdomen, and from two to six inches thick. It was this fat mixed with blood that formed the *manteca*, which was highly esteemed, and extremely dear among the Romans, who, according to Pliny, reckoned it more efficacious than goose fat, for rheumatism, cold swellings, and palsy ; and even at present the Arabians prescribe it in these disorders*. Valisnieri is the only one who, probably from his happening to dissect very lean Ostriches, suspects the existence of this fact ; and the more so, that in Italy the leanness of the Ostrich has passed into

* *The World Displayed*, vol. xiii.

a proverb, *magro comme uno struzzo* * ; he adds, that those which he examined appeared after dissection like mere skeletons: but this must be the case with respect to all Ostriches that have no fat, or in which it has been separated, since there is no flesh on the breast or belly, for the muscles of the abdomen do not become fleshy till they reach the sides.

If from the organs of digestion we pass to those of generation, we shall find other analogies to the structure which obtains in quadrupeds. In the greatest number of birds, the *penis* is concealed; but in the Ostrich it is apparent, and of a considerable size, composed of two white ligaments, that are solid and nervous, four lines diameter, and sheathed in a thick membrane, and which only unite at the breadth of two fingers from their extremity. Sometimes we also meet in the same part a red spongy substance, supplied with a multitude of vessels, and very similar to the *corpus cavernosum* that is observed in the land animals. The whole is inclosed in a common membrane, whose texture is the same as that of the ligaments, though not so thick or hard. This *penis* is furnished with neither gland nor prepuce; nor, according to the anatomists of the academy, is even perforated for the ejection of the seminal fluid; but Warren pretends that he dissected an Ostrich, whose yard was five inches and a half

* “ Meagre as an Ostrich.”

long,

long, and furrowed longitudinally along the upper surface, with a kind of channel, which appeared to him to be destined for conveying the semen. Whether this channel was formed by the junction of the two ligaments; or that Warren mistook for the *penis* the cartilaginous nut of the second bag of the *rectum*, which is in fact parted; or that the structure and shape of this organ is liable to vary in different subjects; it appears that the yard adheres at its origin to the cartilaginous nut, and bending downwards, it passes through the small sac, and emerges at the external orifice, which is the *anus*, and which being edged with a membranous fold, forms at this part a false prepuce, that Dr. Brown has undoubtedly mistaken for a real prepuce, for he is the only person who asserts that the Ostrich has that excrescence *.

There are four muscles attached to the *anus* and the yard, whence results a sympathy of motion; and this is the reason why, when the animal voids its excrements, the yard protrudes several inches †.

The testicles differ widely in regard to size in different individuals, and vary even in the proportion of forty-eight to one; owing, doubtless, to their age, the season, the nature of the disease which preceded death, &c. Their external shape varies

* *Collect. Philos.*

† Warren learned this fact from persons who kept several Ostriches in England.

also, but their external structure is always uniform; they lie on the kidneys, nearer the left than the right. Warren imagined he could perceive feminal vesicles.

The females also have testicles; for so we ought to call those glandulous bodies, four lines in diameter and eighteen long, which are found under the *ovarium* adhering to the *aërta* and *vena cava*, and which nothing but the predilection of system could convert into the lower glands of the kidney. The female Little Bustard is also furnished with testicles similar to those of the male, and there is reason to believe that the female of the Great Bustard has the same structure; and if the Anatomists of the Academy, in their numerous dissections, have supposed that they never met with any but males, it is because they would not admit an animal in which they found testicles to be a female. But every body knows that the Bustard approaches the nearest of the European birds to the Ostrich, and therefore all that I have said on the subject of the generation of testicles in the bodies of female quadrupeds, applies readily to this class, and will afterwards perhaps be discovered to admit of a greater extension.

Below these two glandulous bodies is placed the *ovarium*, adhering also to the great blood vessels; it generally contains eggs of different sizes, inclosed in their capsule like small glands, and attached to the ovarium by their stalks.

This *ovarium* is single, as in almost all birds; and we may remark by the way that this affords another presumption against the opinion of those who maintain that the two glandulous bodies which occur in all the females of quadrupeds, represent the *ovarium*, which is a single organ; instead of admitting that they are really testicles, which must be reckoned among the double parts, both in the males of birds and in those of quadrupeds *.

The funnel of the *oviductus* opens below the *ovarium*, and sends off to the right and left two winged membranous appendices, which resemble those that occur at the end of the tube in land animals. The eggs which are separated from the *ovarium* are received into this funnel, and conveyed along the *oviductus* to the last intestinal sac, where they are discharged through an orifice, which, in its natural state, is only four lines in diameter, but its wrinkled surface expands and forms a dilatation proportional to the bulk of the eggs. All the inner coat of the *oviductus* is also full of wrinkles, or rather folds, as in the third and fourth stomachs of the ruminating animals.

* The Flamingo is the only bird in which the Anatomists of the Academy found two *ovaria*; and these are, according to them, nothing more than two hard solid glandulous bodies, of which the left one is divided into several unequal globules. But this is a singular instance from which no general conclusion can be drawn.

Lastly,

Lastly, the second intestinal bag has its cartilaginous nut in the female as well as in the male; and this nut, which sometimes projects more than half an inch from the *anus*, has a small appendix three lines in length, thin and incurvated, which the Anatomists of the Academy take for a *clitoris*, and with the greater probability, as the same two muscles that are inserted in the base of the yard in the males, are also connected to the origin of this appendix in the females.

I shall not dwell on the description of the organs of respiration, since they resemble almost entirely those of the other birds; consisting of two lungs of a spongy substance with ten air cells, five on each side, of which the fourth is here the smallest, as usual in all the bulky species of birds: these cells receive the air from the lungs, with which they have very distinct communications; but they must also have communications with other parts, though less apparent; for when Vallisnieri blew into the *trachea-arteria*, he observed an inflation along the thighs and wings, which indicates a structure similar to that of the Pelican, in which Mery perceived, under the insertion of the wing, and between the thigh and the belly, membranous bags, which were filled with air during expiration, or when air was injected forcibly into the *trachea-arteria*, and which probably furnish it to the cellular texture.

Dr. Brown positively asserts, that the Ostrich has no *epiglottis*: Perrault supposes the same thing, since he bestows on a certain muscle the office of shutting the *glottis*, by contracting the *larynx*. Warren affirms that he perceived a glottis in the subject which he dissected; and Vallisnieri reconciles these opposite opinions, by saying that there is really no perfect *epiglottis*, but that the posterior part of the tongue supplies the defect, closing on the *glottis* in deglutition.

There are various opinions also with respect to the number and form of the cartilaginous rings of the *larynx*: Vallisnieri reckons only two hundred and eighteen, and maintains, with Perrault, that they are all entire: Warren found two hundred and twenty-six complete, exclusive of the first ones which were imperfect, or those immediately under the forking of the *trachea*. All this may be true, considering the great varieties to which the structure of the internal parts are subject; but it proves at the same time the rashness of attempting to describe a whole species from a small number of individuals, and the danger of mistaking anomalous varieties for constant characters. Perrault observed, that each of the two branches of the *trachea-arteria* is divided at its junction with the lungs into a number of membranous ramifications, as in the elephant. The brain, with its *cerebellum*, forms a mass about two inches and a half long, and

twenty lines broad. Vallisnieri affirms, that the one he examined weighed only an ounce, which would not amount to the one-twelfth-hundredth part of the weight of the animal : he adds, that the structure was exactly similar to that of the brain of other birds, and precisely such as described by Willis. I shall observe however, with the Anatomists of the Academy, that the ten pairs of nerves arise and proceed from the *cranium*, in the same manner as in land animals ; that the cortical and the medullary part of the *cerebellum* are also disposed as in these animals ; and that we sometimes find the two vermiform apophyses which occur in man, and a ventricle, shaped like a writing pen, as in most of the quadrupeds.

With respect to the organs of circulation, I shall only notice, that the heart is almost round, while in other birds it is generally elongated.

In regard to the external senses, I have already described the tongue, the ear, and the external form of the eye : I have only to add, that its internal structure is the same with what is commonly observed in birds. Ranby asserts, that the ball taken from its socket, spontaneously assumes a form almost triangular ; he also remarks, that the quantity of the aqueous humour is greater, and that of the vitreous less than ordinary.

The nostrils are placed in the superior mandible, not far from its base, and on the middle of each aperture rises a cartilaginous protuberance

covered with a very thin membrane, and these apertures communicate with the palate by means of two canals which terminate in a pretty large cleft. We should be mistaken, were we to infer from the complicated structure of this organ, that the Ostrich possessed the sense of smell in an eminent degree; for the most undoubted facts prove exactly the reverse; and in general it appears that the chief impressions, and the most exquisite which this animal receives, are those of sight, and of the sixth sense.

This short view of the internal organization of the Ostrich is more than sufficient to confirm the idea which I before gave, that this singular animal must be considered as a being of an equivocal nature, and as forming the shade between the quadruped and the bird: and in a system which would represent the true gradation of the universe, it should be referred neither to the class of quadrupeds nor to that of birds, but ranged in the intermediate place. Indeed, what rank can we assign to an animal whose body is partly that of a bird, partly that of a quadruped*; its feet like those of a quadruped, its head similar to that of a bird; the male furnished with a *penis*, the female with a *clitoris*, as in the quadrupeds; which is oviparous, and has a gizzard like the birds, and at the same time is supplied with several stomachs, and with intestines, whose

* Aristotle.

capacity and structure are analogous partly to the ruminating, and partly to the other quadrupeds?

In the order of fecundity, the Ostrich seems to be more nearly related to the quadrupeds than to the birds; for its incubations are frequent, and it hatches many young at a time. Aristotle says, that, next after the Ostrich, the bird which he calls the *Atricapilla*, is that which lays the most eggs; and he adds, that this bird, *Atricapilla*, lays twenty and more; whence it follows that the Ostrich lays at least twenty-five. Besides, the best informed modern historians and travellers relate, that it has several sittings, with twelve or fifteen eggs in each. But if we refer it to the class of the birds, it would be the largest, and consequently ought to be the least prolific, according to the law which Nature seems to have constantly observed in the multiplication of animals, that it is universally proportional to the bulk of the individuals; whereas, if we refer it to the class of land animals, it appears diminutive beside the largest species, and smaller than those of a middle size, as the hog, and its great fecundity is therefore consistent with the general order of the universe.

Oppian, who entertained the strange notion that the camels of Bactriana copulated backwards, turning their tails to each other, believed also that the *camel bird* (the name anciently applied to the Ostrich) performs its embraces in

the same manner ; and he advances it as an undoubted fact. But this is no more probable with respect to the camel-bird than with respect to the camel itself ; and though it is most probable that few observers have witnessed their coupling, and that none have described it, we ought still to conclude, since there is no proof of the contrary, that it is accomplished in the usual way.

The Ostriches are reckoned excessively falacious, and often copulate ; and if we recollect what has been already said with respect to the dimensions of the yard, we shall readily conceive that this act is not performed by mere compression, as in almost all the other birds, but that the male organ is really introduced into the sexual parts of the female : Thevenot is the only person who asserts that they pair, and that, contrary to what is usual with the large birds, each male selects his female.

The time of laying their eggs depends on the climate they inhabit, but is always near the summer solstice ; that is, about the beginning of July, in the northern parts of Africa*, and towards the end of December, in the southern tracts of that continent †. The temperature of the climate has also great influence on the mode of hatching. In the torrid zone, they are contented with depositing their eggs in a heap of sand loosely scraped together with their feet, and

* Albert.

† Dampier.

leave the developement of the young to the powerful agency of a burning sun. Nor is this always necessary; they are sometimes hatched, though neither covered by the mother, nor exposed to the influence of the solar rays*. But though the Ostrich has seldom or never recourse to incubation, she is far from abandoning her eggs: she watches assiduously over their preservation, and seldom loses sight of them. This has given occasion to the saying, that they hatch them with their eyes; and Diodorus relates a method of catching these animals, which is founded on their strong attachment to their expected offspring: this is to set in the ground round the nest, at a proper height, stakes, armed with sharp points, upon which the mother rushes heedlessly, and is transfixed.

Though the climate of France is much colder than that of Barbary, Ostriches have sometimes laid their eggs in the *Menagerie* of Versailles; but the Anatomists of the Academy were unsuccessful in their attempts to hatch them, either by artificial incubation, or by the heat of the sun, or by the application of the gradual heat of a slow regulated fire; nor could they trace in any of the eggs the least marks of an incipient organization, or discover the

* When Jannequin was at Senegal, he put two Ostrich's eggs into a cask, and packed them well with tow; but sometime afterwards, on opening it, he found that one of the eggs was quite ripe for exclusion.

slightest indication of the production of a new being.—The yolk and the white of the one that had been heated by the fire, were only a little thickened; that exposed to the sun contracted a very putrid smell; but neither shewed the least appearance of the rudiments of a *fœtus*; and in short, this philosophical incubation was totally unsuccessful*.—Reaumur had not yet appeared.

The eggs are extremely hard, heavy, and large; but sometimes they are supposed to be more bulky than they really are, those of the crocodile being mistaken for them †. It has been asserted, that they are as large as the head of a child ‡, that they would contain a quart ||, that they weigh fifteen pounds, and that an Ostrich lays fifty § eggs in the year; Ælian goes as far as eighty. But most of these circumstances are evidently exaggerated: for, first, is it possible that an egg, whose shell is not more than a pound in weight, and whose capacity is at most only a quart, could weigh fifteen pounds? To reconcile this, we must suppose that the yolk and white are seven times denser than water, three times than marble, and almost as dense as tin, which is rather a strained hypothesis. Secondly, Admitting with Willughby, that the Ostrich lays annually fifty eggs, weighing fifteen pounds each, it would follow that, in the course of the year, she would exclude seven hundred

* *Mem. pour servir à l'Hist. des Anim.*

† Belon.

‡ Willughby.

|| Belon.

§ Leo Africanus.

and fifty pounds, which is too much for an animal that is scarcely eighty pounds weight.

We must therefore make a considerable abatement both in the weight of the eggs, and in their number ; but it is a pity that we have not sufficient data to ascertain the precise quantity. Aristotle indeed renders it probable, that the number of eggs is from twenty-five to thirty ; and the most judicious modern writers state it at thirty-six. If we suppose two or three layings in the year, and a dozen eggs to each, we might also admit the weight of each egg to be three or four pounds, allowing a pound for the shell, and two or three for the white and yolk ; but this is merely conjecture, and far from being accurate. Many people write, but few weigh, measure, or compare. Of fifteen or sixteen Ostriches which have been dissected in different countries, only one has been weighed, and it is that which we have described from Vallisnieri.—We are no better informed with respect to the time necessary for the incubation of the eggs ; all we know, or rather all that is asserted is, that as soon as they are hatched, the young Ostriches are able to walk, and even to run and search for their food ; inasmuch that in the torrid zone *, where they enjoy the proper degree of warmth, and can easily provide their suitable subsistence, they are emancipated at their birth, and abandoned by their mother, on

* Leo Africanus.

whose

whose assistance they are independent. But, in the more temperate countries, as at the Cape of Good Hope*, the mother watches over her young so long as her assiduous attention is necessary; and in every climate her care is proportioned to their wants.

The young Ostriches are of an ash-gray the first year, and entirely covered with feathers; but these are false, and soon drop. They are never restored on the head, on the top of the neck, on the thighs, on the sides, and below the wings; but they are replaced on the rest of the body by plumes alternately black and white, and sometimes gray, from the blending these two colours into each other. The shortest are on the lower part of the neck; those on the belly and the back are longer; but the longest of all are those at the extremity of the tail and of the wings, and are also the most esteemed. Klein mentions, on the authority of Albert, that the dorsal feathers are very black in the males, and brown in the females; but the Academicians, who dissected eight Ostriches, five male and three female, found the plumage nearly alike in all; yet they never observed red, green, blue, or yellow feathers, as Cardan seems to have believed, from a strange oversight in a work *De Subtilitate*.

Redi discovered, from numerous observations,

* Kolben's Account of the Cape.

that almost all birds are subject to vermin in their feathers, and even vermin of different kinds ; that the greatest number have insects peculiar to them, and no where else found ; but in no season could he ever perceive them in Ostriches, though he examined a dozen of those animals, some of which had been recently brought from Barbary. Further, Vallisnieri, who dissected two Ostriches, found in the bowels neither *lumbrici*, nor worms, nor insects of any sort. It would seem therefore, that none of these creatures are fond of the Ostrich flesh ; that they avoid it with an aversion, and that it has some quality pernicious to their multiplication. Perhaps the breeding of vermin is prevented internally by the great powers of the stomach, and the digestive organs. Many fabulous opinions have been entertained on this subject. It has been asserted, that the Ostrich digests iron as poultry digest grain ; and some authors have even gone so far as to allege, that it could digest red-hot iron *. The last opinion requires no serious refutation ; and it will be enough to ascertain from facts, if the Ostrich can grind down cold iron.

It is certain that these birds live chiefly on vegetable substances ; that their gizzard is lined with very strong muscles, as in all the granivo-

* Marmol, *Descrip. de l'Afrique*.

rous class*; that they often swallow bits of iron†, copper, stones, glass, wood, and any thing that occurs. I will not deny that they may even sometimes swallow hot iron, if the quantity be small, and this perhaps without suffering any inconvenience. It appears that they swallow whatever they can find, till their capacious stomachs be completely filled; and that the need of ballasting them with a sufficient weight, is one of the principal causes of their voracity. The gallinaceous tribe, and other granivorous animals, whose organs of taste want sensibility, also swallow many small stones, when mixed with their food, mistaking them probably for grains; but if stones be offered alone, they will perish of hunger, and not touch one of them; and still less will they meddle with quick-lime. We may therefore conclude, that the Ostrich is one of the birds whose senses of taste and smell are the most obtuse; and in this circumstance they are widely separated from the quadrupeds.

But what become of those hard noxious substances, especially the copper, the glass, and the iron, which the Ostrich swallows at random, and

* Though the Ostrich is actually omnivorous, it may still be ranged in the granivorous class, since in its deserts it lives on dates, and other fruits, or vegetable substances; and in *menageries* it may be kept on the same food. Also Strabo tells us, Book vi. that when the hunters want to ensnare it, they use grain for bait.

† I say often; for Albert affirms that many Ostriches would not swallow iron, though they devoured hard bones, and even stones with avidity.

merely

merely with the view of repletion? On this subject the authors are divided, and adduce particular facts in support of each opinion. Perrault, having found seventy doubloons in the stomach of one of these animals, observed, that most of them were worn down, and reduced to three-fourths of their prominence. He conceived that this was occasioned by their mutual friction, and the comminution of pebbles, rather than by the action of any acid; since some of these doubloons were much corroded on the convex surface, which was most exposed to the attrition, and yet not in the least affected on the concave side. He therefore concluded, that, in these birds, the solution of the food is not performed merely by subtile and penetrating juices, but is effected by the organic action of the stomach, which compresses its aliments, and agitates them incessantly with those hard bodies which they instinctively swallow. And, because the contents of the stomach were tinged with green, he inferred that the copper was actually dissolved in it; not by any particular solvent, nor by the powers of digestion, but in a similar manner to what would take place if that metal were ground with herbage, or with some acid or saline liquor. He adds, that copper, far from affording nourishment in the stomach of the Ostrich, really acts as a poison, and that all those who swallowed much of it soon died.

Vallif-

Vallisnieri, on the other hand, imagines, that the Ostrich digests or dissolves the hard substances chiefly by the action of the acid liquor of the stomach; but he does not exclude the effect of attrition which may assist the solution. His proofs are these:

1. Bits of wood, iron, or glass, which have remained some time in the stomach of the Ostrich, are not smooth and shining, as they would be if worn by the friction of the coats; but are rough, furrowed, perforated, and precisely such as would be produced by the corrosion of a solvent.
2. This solvent reduces the hardest and the softest bodies alike to impalpable molecules, which may be observed by the microscope, and even by the naked eye.
3. He found in the stomach of the Ostrich a nail fixed in one of the sides, in such a manner as to prevent its meeting the opposite side, and consequently the compression of the contents; yet the food was as completely dissolved in this ventricle as in another in which the usual action could take place; and this at least proves, that in the Ostrich digestion is not performed solely by trituration.
4. He observed a copper thimble in the stomach of a capon, which was corroded only where it touched the gizzard, and consequently where it was least exposed to the attrition of the
hard

hard substances ; whence the solution of metals in the gallinaceous tribe must be ascribed rather to the action of some menstruum, than to the pressure and resistance of the coats ; and the analogy naturally extends to the Ostrich.

5. He discovered in the stomach of the Ostrich, a piece of money which had been so completely corroded, that its weight was reduced to three grains.

6. The glands of the first stomach exude, when squeezed, a viscous, yellowish, insipid liquor, which, however, quickly marks iron with a dull spot.

7. Lastly, the activity of these juices, the force of the muscles of the gizzard, and the black colour which tinges the excrements of the Ostriches that have swallowed iron, which also happens to those persons who use martial preparations, and have a vigorous digestion, supporting the preceding facts, incline Vallisnieri to conjecture, not indeed that the Ostriches really digest iron, and are nourished by it, as several insects and reptiles feed on earth and stones, but that the stones and the metals, especially iron, being dissolved by the gastric liquor, temper, like absorbents, the acrid juices of the stomach, and mix with the nutriment as useful ingredients for seasoning it, and increasing the action of the solids. And this conclusion is the more reasonable, since iron is known to enter into the composition of living beings ; and,

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when sufficiently attenuated by proper acids, it becomes volatile, and shews a tendency as it were to vegetate, and assume forms analogous to those of plants, as is observed in the *arbor Martis* *. In this sense only can the Ostrich be said to digest iron: and even admitting that the powers of the stomach were sufficient to produce the effect, it is still extremely ridiculous to imagine, that the gizzard has the beneficial qualities of a medicine, and is proper for assisting a debilitated appetite. But such is the nature of the human mind! struck with a rare or singular object, she never fails to heighten the wonder by the addition of chimerical, and often absurd qualities. Hence it has been affirmed, that the most transparent stones found in the stomach of the Ostrich, have the virtue, when applied to the neck, of promoting digestion; that the inner coat of the gizzard has the power of correcting a cold temperament, and of rekindling the fire of lust; its liver, that of curing the falling-sickness; its blood, that of restoring sight; and, the shell of its egg reduced to powder, that of relieving the gout, and the gravel, &c. Vallisnieri had an opportunity of demonstrating by experiments the falsity of these pretended virtues; and his experiments are the more decisive, as they were

* *Memoires de l'Academie des Sciences, années 1705, 1706, &c. suivantes*; VALLISNIERI. His opinion is farther confirmed by the observations of Santorini on bits of money, and keys found in the stomach of an Ostrich which was dissected at Venice; and by the experiments of the Academy de Cimento on the digestion of birds.

performed on persons the most credulous, and the most subject to prejudices.

The Ostrich is a bird peculiar to Africa, the islands contiguous to that continent *, and that part of Asia which borders on it. These regions, which are the native abodes of the camel, the rhinoceros, the elephant, and many other large animals, must also be the paternal seat of the Ostrich, which is the elephant of the birds. They are very numerous, according to Dr. Pocock, on the mountains situated on the south-west of Alexandria. A missionary mentions that they occur at Goa, though much more rarely than in Arabia †. Philostratus pretends that Apollonius found them even beyond the Ganges ‡; but this was certainly at a period when Hindostan was less populous than at present. Modern travellers have never observed any in that country, unless such as were carried thither §; and all agree, that on either side of the line, they never pass beyond the thirty-fifth degree of latitude; and as they cannot fly, they are in the same predicament with the quadrupeds in the southern tracts of the ancient conti-

* The *Vorou-Patra* of Madagascar is a kind of Ostrich which retires into solitary spots, and lays eggs of an uncommon size.

† Travels of Father Philip, a bare-footed Carmelite.

‡ Life of Apollonius, book iii.

§ They are kept in the *menageries* of the king of Persia, according to Thevenot; which shews that they are not common in that country. On the road from Ispahan to Schiras four Ostriches were brought into the *caravansera*, says Yemelli Carreri.

ment ; that is, they cannot migrate into the new continent. Hence they have never been discovered through the whole range of America, though the name has been applied to the Tou-you, which is analogous to them indeed, but is quite a different species, as we shall soon find. For the same reason they have never been found in Europe, though they might enjoy a climate suited to their nature in the Morea, in the south of Spain, and in Italy. But, before they could migrate into these countries, they must have crossed the intervening seas, which was impossible ; or follow the line of coast as high as the fiftieth degree of latitude, another obstacle equally insurmountable for an animal that delights in the parched plains. The Ostriches prefer the most solitary and the most arid tracts, that are scarcely ever refreshed by genial showers* ; and this confirms the account of the Arabians, that they do not drink. They assemble in these deserts in numerous flocks, which at a distance

* “ Theophrastus says, that the Ostrich breeds in that part of Africa where it does not rain.” GESNER. All the travellers and naturalists are agreed on this point. G. Warren is the only person who reckons the Ostrich aquatic : he admits that it never swims ; but says that its legs are tall, and its neck long ; so that it could wade in the water and catch its prey ; and, as its head resembles that of a goose, hence he infers that it is a river bird. *Philos. Trans.* N^o 394. Another hearing that in Abyssinia the Ostriches were of the size of an ass, and that their neck and feet resembled those of the quadrupeds, concluded that they must have an ass’s tail and feet. SUIDAS.—Hardly is any part of Zoology so obscured by absurdities as the history of the Ostrich.

resemble troops of cavalry, and as such have alarmed many caravans. Their life must be spent rather hardly in these vast barren solitudes ; but there they taste the sweets of liberty and love. And is not the desert which offers these ravishing pleasures converted into an Elysian field ? To enjoy these inestimable blessings they fly the presence of man ; but man learns the profit he can derive from them ; he haunts them in their most savage retreats ; he feeds on their eggs, their blood, their fat, their flesh ; decks himself with their plumes ; and perhaps he flatters himself with the hope of completely subduing them, and of ranking them among the number of his slaves. The advantages which the domestication of the Ostrich promises are so important, as to threaten its security, even in the deserts.

Whole nations have merited the name of *Struthophagi*, from the custom of feeding on the Ostrich ; and these people bordered on the *Elephantophagi*, who had not better cheer. For this dish Apicius directs, and with great reason, a poignant sort of sauce ; which proves that it was used among the Romans ; but we have other evidences. The Emperor Heliogabalus once ordered the brains of six hundred Ostriches to be served up for a single repast. That monster, it is well known, had a whim of eating each day only a single kind of food ; such as pheasants, hogs, pullets, &c. and the Ostrich was of the

number, but seasoned no doubt after the *recipe* of Apicius. Even at present the inhabitants of Lybia, Numidia, &c. feed upon tame ones; eat the flesh, and sell the feathers: yet neither the dogs nor the cats would touch the fragments of the Ostrich dissected by Vallisnieri, though it was fresh and florid. It is indeed true that the Ostrich was extremely lean, and was perhaps old; but Leo Africanus, who tasted them in their native deserts, informs us, that they were seldom eaten, except when young, and even after being fattened. The Rabbi, David Kimchi, adds, that the females were preferred; and perhaps the flesh was rendered more palatable by castration.

Cadamosto and some other travellers mention their having tasted Ostrich eggs, which they found not to be unpleasant food; De Brue and Le Maire affirm, that a single one is a meal sufficient for eight men; and others assert, that it weighs as much as thirty hen eggs; but even this is far short of fifteen pounds.

The shell of these eggs is formed into various sorts of cups, which in time grow hard, and in some degree resemble ivory.

When the Arabians have killed an Ostrich, they open its throat, and make a ligature below the incision; three or four of them then take it, and shake it backwards and forwards, as we would rinse a bottle: the ligature being then removed, a considerable quantity of *manteca*,
of

of the consistence of concrete oil, oozes from the hole. They extract sometimes as much as twenty pounds from a single Ostrich; and this *manteca* is nothing but the blood of the animal mixed, not with the flesh as has been alleged, since there is none on the belly and breast, but with that fat, which in plump Ostriches forms, as we have said, a coat several inches thick on the intestines. The natives of the country assert that the *manteca* is pleasant to eat, but occasions a looseness.

The Ethiopians slay the Ostriches, and sell their skins to the merchants of Alexandria. The leather is very thick, and the Arabians formerly made it into inner jackets, which served instead of a cuirass and buckler. Belon saw large quantities of these skins stripped of their feathers in the shops at Alexandria.—The long white plumes of the tail and wings have always been highly esteemed; the ancients used them for decoration, and appropriated them to distinguish the military profession, in which they succeeded to the feathers of the swan; for birds have always furnished the polished nations, as well as the savage tribes, with the materials of ornament. Aldrovandus informs us, that there are still preserved at Rome two ancient statues, one of Minerva and another of Pyrrhus, in which the helmet is decked with the plumes of the Ostrich. It seems probable that these also composed the bunch worn by the Roman soldiers, which Po-

lybius mentions, and which consisted of three black or red feathers, about a cubit in height. In Turkey, even at present, a Janissary, who has distinguished himself by his warlike achievements, is entitled to wear them in his turban; and in the seraglio, the Sultana, when she would heighten her charms to obtain a gentler conquest, employs them to decorate her person. In the kingdom of Congo, these feathers are mixed with those of the peacock, to form ensigns of war; and the ladies of England and of Italy make them into a sort of fans. It is well known what prodigious consumption is made of them in Europe for hats, helmets, theatrical dresses, furniture, canopies, funeral decorations, and even for female ornaments: and indeed it must be allowed, that they have a fine effect, both from their natural and their artificial colours, and from their gentle waving motion. But it may be proper to observe, that the feathers most admired, are those which are plucked from the animal while alive; and are known by this property, that when the quill is pressed by the fingers, it discharges a bloody liquor, while those that are pulled after death are dry, light, and very liable to worms.

The Ostriches, though inhabitants of the desert, are not so wild as might be supposed. All travellers agree in saying, that they are easily tamed, especially when young. The people of Dara, of Lybia, &c. breed them in flocks, and undoubtedly

undoubtedly obtain from them feathers of the best sort, which are only gotten from living Ostriches. They even grow domestic without much trouble, merely from the habit of seeing men, and receiving food, and experiencing kind treatment. Brue, having purchased two of them at Serinpate on the coast of Africa, found them quite tame when he arrived at Fort St. Louis.

They have even been brought farther than domestication, and some have trained them to carry their rider like a horse. Nor is this a modern invention; for the tyrant Firmius, who reigned in Egypt about the end of the third century, used, it is said, to be carried on large Ostriches. Moore, an Englishman, mentions, that he saw at Joar in Africa, a man travelling on an Ostrich. Vallisnieri speaks of a young man who mounted on an Ostrich, exhibited at Venice before the rabble; and Adanson saw, at the factory of Podor, two young Ostriches, the strongest of which ran faster than the best English hunter, though it carried two negroes on its back. All this proves that these animals, though not absolutely intractable, are yet of a stubborn nature, and if they could be taught so much as to keep together in flocks, and return to their stable, and even to allow themselves to be mounted, it would still be difficult and perhaps impossible to instruct them to obey the reins, to feel the wish of the rider, and comply with it.

We

We see, even from the relation of Adanson, that the Ostrich of Podor did not make a distant stretch, but only took several turns round the hamlet, and that its course could only be stopped by throwing some obstacle in its way. Docile to a certain degree of stupidity, it seems intractable from its nature; and this must be really the case, since the Arab, who has tamed the horse and enslaved the camel, has never completely subdued the Ostrich; but till this be obtained, advantage can neither be derived from its speed nor its force, for the strength of an indocile domestic is always hurtful to its master.

But, though the Ostriches run faster than the horse, they are yet caught by means of horses; but to succeed requires dexterity. The plan which the Arabs take is to keep constantly within sight of them, without pressing them too hard; they are particularly careful not to suffer them to feed, though not to disturb them so much as to tempt them to make their escape by a sudden flight. And the execution is the more easy, since they seldom hold a straight course, but almost always describe a circle. The Arabs therefore, tracing a smaller circle within the other, can always keep their proper distance, and yet pass over much less ground. After a day or two, when the Ostriches are worn out with fatigue and want of food, the horsemen suddenly dart upon them at full gallop, endeavouring as much as possible to drive them against the wind,
and

and they kill them with the blows of a stick, that the blood may not spoil the fine white of the plumes. It is said, that when they feel themselves overcome, and unable to escape from the hunters, they conceal their head, and imagine that they cannot then be perceived; but that absurdity must be ascribed to those who attempt to conjecture their intentions; it is evident that they only try to protect that part of their body at last, which is at once the weakest and the most essential.

The *Struthopbagi* had another method of catching these animals: they covered themselves with an Ostrich's skin, and slipping their arms into the neck, they imitated all the ordinary motions of the Ostrich itself, and thus were able to get near it and surprise it. In the same manner, the savages of America disguise themselves like roe-bucks, to catch the roe-bucks.

Dogs and nets also have been used, but it would seem that the horse is most commonly employed; and this circumstance alone is sufficient to explain the antipathy which has been supposed to subsist between the horse and the Ostrich.

In running, it spreads its wings and the large feathers of its tail, not with the view to assist its motion, as I have already said, but from the common effect of the correspondence of muscles; just as a man running throws about his arms, or an elephant that turns upon its hunter, erects and displays

displays its large ears. But the complete proof that the Ostrich does not raise its feathers to increase its celerity is, that it spreads them, even when it runs against the wind; in which case they can only retard its progress. If we consider that bulk and swiftness are combined in the Ostrich, we must be convinced that they are extremely strong; yet it preserves the manners of the granivorous animals: it never attacks the weak, and seldom opposes the assaults of the strong. Covered with a hard thick coat of leather, and furnished with a broad *Sternum*, which serves for a breast-plate, and defended by another callous breast-plate, it hardly feels the application of external blows; and it escapes from the greater and more serious dangers by the rapidity of its flight. If it sometimes makes resistance, it employs its bill, the points of its wings, and particularly its feet. Thevenot saw one which overthrew a dog by a blow of its foot. Belon says that it could run down a man; but that in its flight it throws stones at its pursuer. I doubt the fact, especially as its velocity would only diminish that of the stones which it might throw, the two motions being opposite. Besides, this fact, advanced by Pliny, and copied by many others, does not appear to be confirmed by any modern of credit, and it is known that Pliny possessed more genius than discernment.

Leo Africanus says, that the Ostrich wants the sense of hearing; yet we have already seen that

that it appears to have all the organs which give those sensations ; the aperture of the ears is even very wide, and is not obstructed by feathers. It is probable therefore, that either like the grous, it is only deaf in the season of love ; or that what has been imputed to its deafness, is really the effect of stupidity.

It is most likely that this is the season when its cry is heard : this happens seldom, for few persons have mentioned it. The sacred writers compare its cry to moaning, and it is even pretended that its Hebrew name *jacnab* is derived from *ianab*, which signifies *to howl*. Dr. Brown says, that it resembles the wailing of a hoarse child, and is still more plaintive ; how gloomy is it then, and even terrible, to use the expression of Sandys, to travellers who penetrate with timorous apprehensions into the immensity of these deserts, where every living being, man not excepted, is an object of dread and danger !

The T O U Y O U.

Struthio Rhea, Linn. Gmel. Borowlk.

Rhea Americana, Lath. Ind.

Rhea, Briss.

Struthio Nothus, Klein.

Struthio-camelus Americanus, Ray and Will.

Struthio Emeu, Nieremb.

Nbandagnacu Brasiliensis, Marcg. and Piso.

The American Ostrich, Will. Damp. Lath.

WHAT is called the Ostrich of South America, or the *Ostrich of the Straits of Magellan and Guiana*, is quite different from the Ostrich; and Le Maire is, I believe, the first traveller, who, deceived by some traces of resemblance to that African bird, has given it the same name. Klein, who perceived that it was of another species, is contented with calling it *the Bastard Ostrich*. Barrere has sometimes termed it the *Heron*, sometimes the *ferrivorous Crane*, and sometimes the *Long-necked Emeu*. Others have with more accuracy applied a compound name, expressive of several of its qualities, *the Gray Cassowary with the Ostrich-bill*. Moehring and Brisson prefer the Latin name *rhea*, to which the latter annexes the American epithet *Touyou*, formed from *Touyouyou*, by which it is generally known in Guiana. The savages settled in other parts of the continent

have given it different names: *Yardu*, *Yandu*, *Andu*, and *Nandu-guacu*, in Brazil*; *Sallian* in the island of Maragnan†; *Suri* in Chili, &c. So many names have been bestowed on an animal with which we were so lately made acquainted! For my part, I shall readily adopt that of *Touyou*, which Brisson has applied or rather retained, and I shall not hesitate to prefer this barbarous word, which has probably some analogy with the voice or cry of that bird, to the scientific terms, which only serve to convey false notions, and to new names, which mark no character, no essential property of the animal on which they are bestowed.

Brisson seems to imagine that Aldrovandus meant to figure this bird by the name of *Avis Eme*; and it is true that we find, in the 541st page of vol. iii. of his Ornithology, a plate which represents the Touyou and the Cassowary, according to the two plates of Nieremberg, and that it is inscribed in large characters with the words AVIS EME; in the same manner as the figure of the Touyou in Nieremberg bears the name of *Emeu*. But it is obvious that these two titles have been added by engravers or printers who were little acquainted with the views of the authors: for Aldrovandus does not mention a single word of the Touyou, and Nieremberg only

* Nieremberg, Marcgrave, and Piso.

† Hist. Gen. des Voyages, tome xiv.

calls it *Yardou*, *Suri*, and the *Occidental Ostrich*; and both, in their description, apply the names *Eme* and *Emeu* to the Cassowary of Java alone. In short, to avoid confusion of names, the *Eme* of Aldrovandus and the *Emeu* of Nieremberg ought henceforth to be excluded from the synonyms of the *Touyou*. Marcgrave says, that the Portuguese call it *Ema* in their language; but the Portuguese, who had often visited the East Indies, were acquainted with the *Emeu* of Java, and applied that name to the *Touyou* of America, which was more analogous to it than any other bird; for the same reason that we have applied the term *Ostrich* to the same *Touyou*. We must therefore consider it as an established point, that the *Emeu* belongs exclusively to the Cassowary of the East Indies, and has no relation to the *Touyou*, or any other American bird.

In this detail of the different names of the *Touyou*, I have in part pointed out the different countries where it is found. It is a native of South America, but is not equally common in every province of that extensive country. Marcgrave informs us, that it is seldom seen in the vicinity of Fernambuca, and is equally rare in Peru, and along the most populous coasts; but it is more frequent in Guiana*; in the seignories of Seregippe and of Rio-grande; in the

* Barrere.

interior provinces of Brazil *; in Chili †; in the vast forests situated north from the mouth of the De la Plata ‡; and in the vast savannas which stretch on the south of that river, and in all the *terra Magellanica*, as far as Port Desire, and even to the coast bordering on the straits of Magellan §. Formerly some districts in Paraguay swarmed with these birds, especially the plains watered by the Uruguay; but as the inhabitants multiplied, they killed great numbers, and forced the rest to retire. Captain Wood assures us, that though they abound on the northern coast of the Straits of Magellan, there is not one to be found on the southern shore: and notwithstanding Coreal's affirming that he saw them on the islands in the South Sea, these straits seem to bound the climate suited to the Touyou, as the Cape of Good Hope terminates the region of the Ostrich; and the islands where Coreal saw the Touyous were probably contiguous to the eastern shores of America, beyond the Straits of Magellan. It also appears that the Touyou, which, like the Ostrich, delights in the heat of the torrid zone, is yet not so much affected by cold; for the promontory which runs into the Straits of Magellan is nearer the Pole, than the Cape of Good Hope, or any other climate, where the Ostrich

* Marcgrave.

† Hist. des Gen. Voyages, tome xiv.

‡ Hist. des Incas.

§ Wafer.

has spontaneously fixed its residence: but, as according to all accounts, the Touyou is also, like the Ostrich, entirely a terrestrial bird, and incapable of flying; and as South America is separated from the ancient continent by immense oceans; it would follow that we ought not to expect to find Touyous in our continent, any more than to discover Ostriches in America: and this inference agrees with the testimony of travellers.

The Touyou, though somewhat inferior to the Ostrich, is yet the largest bird in the New World, the full grown ones being six feet high*. Wafer, who measured the thigh of one above the ordinary size, found it almost equal to that of a man. It has the long neck, the small head, and the flat bill of the Ostrich; but in other respects, it resembles the Cassowary. I find even in the history of Brazil, written by the AbbePrevot†, but no where else, mention made of a kind of horn which this bird has on its bill, and which, if it really existed, would be another point of analogy with the Cassowary.

Its body is of an oval shape, and, when clothed with all its feathers, appears almost entirely round. Its wings are very short, and of no use

* In the figure that Nieremberg gives, there is a sort of cap on the crown of the head, which resembles the hard callous skin that, according to Dr. Brown, is found on the same part of the Ostrich: but no mention is made of this cap in Nieremberg's description, or in any other.

† Hist. Gen. des Voyages, tome xiv.

in flying; though they are said to assist it in running. It has on the back and about the rump long feathers, which fall back, and conceal the *anus*, and it has no other tail. Its plumage is all gray on the back, and white on the belly. It is very tall, having three toes to each foot, all anterior; for we cannot consider as a toe that callous round tubercle placed behind, and on which the foot rests as on a claw. To this conformation is imputed the difficulty with which it stands on a smooth surface, and of walking on it without falling; in compensation, however, it runs very swiftly in open ground, raising sometimes one wing, sometimes another, but for purposes that have not yet been well ascertained. Marcgrave supposes, that it is with the view of spreading a sort of sail to catch the wind; Nie-remberg, that it is to throw the scent from the dogs which pursue it; Piso and Klein, that it is to change frequently the direction of its course, by these zig-zags to avoid the arrows of the savages; and others imagine, that it seeks to increase its speed by pricking itself with a kind of needle with which its wings are armed*. But whatever be the intention of the Touyous, certain it is that they run with astonishing velocity, and that it is difficult for any hound to overtake

* It must be observed that neither Piso, Marcgrave, nor any who ever saw the Touyou, take the least notice of this wing-spur; and it is not unlikely that it was bestowed merely from the analogy supposed to subsist between it and the African Ostrich.—What mistakes are occasioned by the confusion of names?

them. It is related of one, that perceiving itself stopt, it darted with such rapidity as disengaged itself from the dogs, and escaped to the mountains*. It being impossible to outstrip them by agility, the savages are obliged to employ address, and to lay snares for catching them†. Marcgrave says, that they live on flesh and fruits; but if they had been observed with attention, it would undoubtedly have been discovered which of these two kinds of aliments they prefer. For want of facts, we may conjecture that these birds having the same instinct with the Ostriches, and other frugivorous animals, viz. that of swallowing stones, iron, and other hard substances, that they are also frugivorous, and that if they sometimes eat flesh, it is either because they are pressed by hunger, or, like the Ostrich, their senses of taste and smell being only in an inferior degree, they swallow indiscriminately whatever comes in their way.

Nieremberg relates very strange stories in regard to their mode of propagation. According to this writer, the male performs the office of hatching the eggs; for this purpose he assembles twenty or thirty females to lay in the same nest, and after they have deposited their eggs, he drives them forcibly away, and covers them himself, taking the singular precaution however to remove two of the eggs from the nest; these two

* Navigations aux Terres Australes.

† Histoire Gen. des Voyages, tom. xiv.

become addle, which the male perceiving, breaks one of them, which invites a multitude of flies, beetles, and other small insects, on which the young Touyous feed ; and after the first is consumed, he opens another for the same purpose. But all this may happen, without recurring to an extraordinary supposition ; the addle eggs may be crushed by accident, and insects attracted, which sometimes serve to nourish the young Touyous. We can suspect here the intention of the parent only ; for these intentions, which we liberally impute to animals, always form the romance of natural history.

With respect to the assertion, that the male takes upon himself, to the exclusion of the females, the care of hatching, I am much inclined to doubt the fact, conceive it as not authentic, and as inconsistent with the order of nature. But it is not enough to point out the causes of error ; we ought, as much as we are able, to discover the causes of it, which sometimes lead us also to the truth. I should therefore imagine that this report is occasioned by the finding of testicles in some fitters ; and perhaps an appearance of the *penis*, as is observed in the female Ostrich, which seemed to evince it to be a male.

Wafer says, that he saw in a desert tract situated on the north of the De la Plata, about the thirty-fifth degree of south latitude, a number of the eggs of the Touyou in the sand, where, according to him, these birds left them to hatch.

If this fact be true, the description which Nie-remberg gives with respect to the incubation of these eggs, can only refer to a climate that is colder, and nearer the pole. In fact, the Dutch found near Port Desire, which is in the forty-seventh degree of south latitude, a Touyou that was sitting, which they chased away, and reckoned nineteen eggs in the nest. It is for the same reason that the Ostriches seldom or never hatch at all in the torrid zone, but cover their eggs at the Cape of Good Hope, where the heat of the climate is inadequate to the effect.

When the young Touyous are newly excluded from the shell, they are very familiar, and follow the first person whom they meet *; but as they grow up, they acquire experience, and become shy †. It appears that in general their flesh is pleasant to eat; though that of the old ones indeed is tough, and of a bad flavour. This flesh might be improved by raising flocks of young Touyous, which would be easy, considering their aptness to be tamed; and, by fattening them, and using the precautions which have succeeded with the turkey, which also de-

* "I have myself," says Wafer, "been followed by many of these young Ostriches, which are inoffensive and unsuspicious."
DAMPIER.

† "There is a great number of Ostriches in this island of Port Desire, which are very wild." *Voyage des Hollandois aux Indes Orientales*.—"I saw at Port Desire three Ostriches, though I could not get near enough to fire at them; as soon as they perceived me they fled." *Navig. aux Terres Australes*.

rives its origin from the warm and temperate countries on the continent of America.

Their feathers are far from being so beautiful as those of the Ostrich; and Correal even asserts that they are totally useless. It is to be wished, that instead of telling us their little value, travellers had given us a precise idea of their texture.—Too much has been written on the Ostrich, and too little on the Touyou. In giving a history of the former, the chief difficulty consists in collecting all the facts, in comparing the relations, in discussing the opinions, and in separating the truth from a heap of rubbish. To discourse on the Touyou, we must often conjecture what *is*, from what *may be*; we are obliged to comment, to interpret, to supply; and when facts cannot be had, to substitute what is probable in their stead; and, in a word, to remain in suspense till future observations can be procured to supply the blanks in its history. [A]

[A] The specific character of the Touyou, *Struthio Rhea*, LINN. is, that “the foot has three toes, the hind one rounded.” LATHAM makes it a genus of which only one species, the *Americana*, is known. “The *bill* is straight, depressed, and roundish at the tip; the *wings* are unfit for flying; the lower part of the *thighs* naked; the *feet* are furnished with three toes before, and behind with a round callous bump.”

The GALEATED CASSOWARY.

Le Casoar, Buff.

Struthio Cassuarius, Linn. and Gmel.

The Cassowary, or *Emeu*, Will. Ray, Briff. Klein, &c.

THE Dutch are the first who shewed this bird in Europe ; they brought it, in 1597, from the island of Java, on their return from the first voyage which they performed to the East Indies *. The natives of the country call it *Eme*, from which the French have formed the word *Emeu*. It was also named *Cassowary*, which I have adopted, since it has been appropriated to this bird.

The Galeated Cassowary, though not so large as the Ostrich, is apparently more bulky ; because its mass is nearly the same, and its neck and feet are shorter and thicker in proportion ; and its body is more protuberant, which gives it a heavier look.

The one described by the Academicians was five feet and a half long, from the point of the bill to the extremity of the claws ; that observed by Clusius was a fourth smaller. Houtman reckons it double the bulk of the swan ; and other Dutchmen mention it as of the size of a

* *Hist. Gen. des Voyages*, tome viii. and CLUSIUS, *Exotic.*

sheep.

sheep. This variety of measures, so far from affecting the truth, is what alone informs us of the real magnitude of the Galeated Cassowary; for the size of an individual is not that of the species, and to estimate that properly, we must consider it as a quantity varying between certain limits. Hence a naturalist who compares with judgment the descriptions of different observers, will have more precise and accurate ideas of the species, than an observer who is only acquainted with a single individual.

What is most remarkable in the figure of the Galeated Cassowary, is that kind of conical helmet, the fore-part of which is black, and the rest yellow, which covers the face from the bottom of the bill to the middle of the crown of the head, and sometimes stretches farther. This helmet is formed by the protuberance of the bones in that part of the cranium, and is sheathed by a hard covering, consisting of several concentric plates analogous to the substance of an ox's horn. Its entire shape resembles a truncated cone, three inches high, an inch diameter at the base, and three lines at its vertex. Clusius thought that this helmet dropped every year with the feathers, in the season of moulting; but the Academicians have properly observed, that the external sheath only could thus fall, and not the inner substance, which, as we have said, forms a part of the bones of the skull; and they even add, that during the four years that

this bird was kept in the *menagerie* at Versailles, they could not perceive that this sheath was ever detached. However, this might have happened through length of time, and by a kind of successive exfoliation, as in the bill of many birds; and this process might have escaped the observation of the keepers of the *menagerie*.

The iris is of a topaz-yellow, and the cornea is remarkably small, compared with the ball of the eye*, which gives the animal a strange wild appearance; the lower eye-lid is the largest, and the upper is set in the middle with a row of small black hairs, which form an arch over the eye like the brow, and this, together with the opening of the bill, produces a threatening aspect. The exterior orifices of the nostrils are seated very near the point of the upper bill.

In the bill we must distinguish the materials which serve to cover it. They are three solid pieces, two of which form the circumference, and the third constitutes the upper ridge, which is much more elevated than in the Ostrich; the three are sheathed with a membrane which fills up the interstices.

The upper and lower mandibles of the bill have their edges a little furrowed near the end, and seem each of them to have three points.

* The ball of the eye was one inch and a half in diameter; the crystalline lens four lines, and the cornea only three lines. *Mem. pour servir a l'Hist. des Anim.*

The head and the arch of the neck are sprinkled with a few small feathers, or rather with some black straggling hairs; so that on these parts the skin appears bare. The colours and their dispositions are various; commonly blue on the sides, violet under the throat, red behind in many parts, but especially in the middle of the neck; and these red parts are more prominent than the rest, on account of wrinkles, or oblique furrows.

The holes of the ears were very large in the Galeated Cassowary described by the Academicians; very small in the one described by Clusius; but in both they were disclosed, and beset like the eyelids with small black hairs.

Near the middle of the fore-part of the neck, and where the great feathers have their origin, rise two barbels which are red and blue, and round at the ends, and which Bontius places in his figure immediately above the bill, as in poultry. Frisch delineates four; two long ones on the sides of the neck, and two before that are smaller and shorter: the helmet also appears larger in his figure, and approaches the shape of a turban. There is in the king's cabinet a head which seems to be that of the Galeated Cassowary, but which has a tubercle different from what is ordinary. It will require time and observation to ascertain whether these varieties, and those which we shall afterwards mention, be constant or not; if some of them be not
owing

owing to the inaccuracy of the designers, or are only sexual differences. Frisch pretend- that he discovered in two stuffed Galeated Cassowaries, the distinguishing marks between the males and females ; but he does not inform us in what these consist.

The wings of the Galeated Cassowary are still smaller than those of the Ostrich, and equally unfit for flying. They are armed with points, and these are even more numerous than in the Ostrich. Clusius found four or five of them ; the Academicians five ; and in Frisch's figure there are evidently seven : these are like the pipes of feathers, and appear red at the end, and are hollow through their whole extent. They contain within their cavity a sort of marrow similar to what is found in the sprouting feathers of other birds. The middle one is near a foot in length, and about three lines in diameter, it being the longest of all : those placed on either side diminish gradually like the fingers of the hand, and nearly in the same order. Swammerdam used them instead of a pipe to inflate very delicate vessels, such as the *tracheæ* of insects, &c. It has been said, that the wings of the Cassowary were intended to accelerate its motion ; others have conjectured that they only served them like switches to assist them in striking ; but no one can assert that he ever saw what use the bird really makes of them. The Cassowary has also another property common to the

the Ostrich, viz. it has but one kind of feathers over its whole body, wings, rump, &c. though most of these feathers are double, each root sending off two branches of different lengths: nor is the structure uniform throughout; the branches being flat, black, and shining, divided underneath into knots, each of which produces a beard or thread, with this difference, that from the root to the middle of the branch, these threads are shorter, more pliant, ramify more, and are covered with a kind of tawny down; whereas, from the middle of the same branch to its extremity, they are longer, harder, and of a black colour, and as these last cover the others, and are the only ones that appear, the Cassowary seen at a distance resembles an animal clothed with hair, like bears or wild boars. The shortest feathers are on the neck, the longest round the rump, and the middle sized on the intermediate space. Those of the rump are fourteen inches long, and hanging over the hinder part of the body, they supply the place of the tail, which is totally wanting.

It has, like the Ostrich, a naked and callous space on the *sternum*, where the weight of the body rests when the bird sits; and this part is still more prominent in the Galeated Cassowary than in the Ostrich*.

The thighs and legs are clothed with feathers almost to the knees, and these feathers were of

* Voyages de la Compagnie Hollandoise.

an ash-gray in the subject which Clusius examined; the feet, which are thick and stout, have three toes, and not four, as Bontius affirms; all of them directed forwards. The Dutch relate, that the Galeated Cassowary employs its feet for defence; striking backwards like a horse, according to some; and according to others, darting forwards against the assailant, it throws him back with its feet, and strikes his breast with violent blows. Clusius, who saw one alive in the gardens of Count Solms at the Hague, says, that it makes no use of its bill for protection, but that it attacks its antagonist sideways, by kicking; he adds, that this Count shewed him a tree about the thickness of his thigh which this bird had spoiled, having stripped off the bark entirely with its feet and nails. The Cassowaries kept in the *menagerie* at Versailles have not indeed been observed to be so strong or so mischievous, but perhaps they were grown tamer than that of Clusius: besides, they lived in abundance and in closer captivity; circumstances which in time meliorate the dispositions of such animals as are not altogether wild, enervate their courage, blunt their original instincts, and render it impossible to distinguish these from their acquired habits.

The claws of the Cassowary are very hard, black on the outside, and white on the inside. Linnæus says, that they strike with the middle claw, which is the largest; yet the descriptions and figures of the Academicians and of Briffon represent

represent the inner claw as the largest, which is really the case.

Its gait is singular ; it appears to kick behind, at the same time it makes a kind of leap forwards. But however ungraceful its motion may be, it is swifter, we are told, than the best runner : indeed celerity of motion is so peculiarly the property of birds, that the tardiest of that tribe excel in the rapidity of their course the most agile of the land animals.

The Cassowary has the tongue indented along the edges, and so short, that it has been said of it, as the moor cock, that it has none. The one observed by Perrault was only an inch long, and eight lines broad *. It swallows any thing that is thrown to it ; that is, any substance which its bill will admit. Frisch justly considers this instinct as indicating an analogy to the gallinaceous tribe, which swallow their aliments entire, without bruising them with their bills ; but the Dutch, who seem to have wished to make the history of this singular bird still more extraordinary by the addition of the marvellous, have not hesitated to assert, that it swallows stones, bits of iron, glass, &c. and even burning coals, without suffering inconvenience †.

It is also said they eject very soon what they have taken, and sometimes discharge apples as

* Mem. pour servir à l'Histoire des Animaux.

† Hist. Gen. des Voyages, tome viii.

large as the hand, and in the same state in which they were swallowed. Indeed, the intestinal canal is so short, that the aliments must soon pass through it; and such as, by their hardness, might occasion some resistance, must undergo little alteration in so small a descent, particularly when the functions of the stomach are deranged by any disease. Clusius was assured, that in these cases, they sometimes ejected hen-eggs, which they are fond of, and quite entire with their shell; but, on swallowing them a second time, they completely digested them*. The principal food of this bird, which was the Cassowary belonging to Count Solms, was white bread cut into small bits, which proves that it is frugivorous, or rather omnivorous, since it really eats whatever is offered it, and has the craw and the double stomach of the animals that live on vegetable substances, and at the same time it has the short intestines of such as feed on flesh. The intestinal canal of the one dissected by the Academicians was four feet eight inches long, and two inches diameter through its whole extent. The *cæcum* was double, and only one line in diameter, and three, four, or five inches long. From this account it appears, that the intestines of the Galeated Cassowary are thirteen times shorter than those of the Ostrich; and for this reason, it must be still more voracious, and still more disposed to animal food, which could be

* Clusius. *Exotic.*

ascertained if observers, instead of resting satisfied with examining the dead bodies, would study the habits of the bird while alive.

The Cassowary has a gall-bladder; and its duct, which crosses the hepatic, terminates higher than that in the *duodenum*, and the pancreatic duct is inserted above the cystic; a conformation of parts quite different from what obtains in the Ostrich. The organs of generation in the male are not so dissimilar: the *penis* rises from the upper part of the *rectum*; its form is that of a triangular pyramid, two inches broad at the base, and two lines at the *apex*; it consists of two solid cartilaginous ligaments, connected closely to each other above, but parted below, and leaving between them a half-channel covered with skin. The *vasa deferentia* and the ureters have no apparent communication with the perforation of the *penis*; so that this part, which seems to fill four principal offices in the quadrupeds, that of carrying off the urine, that of conveying the seminal fluid to the female womb, that of contributing by its sensibility to the emission, that of stimulating the female to melt in the embrace, seems in the Cassowary and the Ostrich to be confined to the two last, which are calculated to excite in the two sexes the necessary correspondence of motion in the venereal act.

Clusius was informed that, when the animal is living, the *penis* sometimes is observed to

project from the *anus*; another point of analogy with the Ostrich.

The eggs are of an ash-gray, verging on greenish, not so thick, but longer than those of the Ostrich, sprinkled with a multitude of small tubercles of a deep green; the shell is not very thick according to Clusius, who saw several of them; the largest of all those which had fallen under his notice was fifteen inches round one way, and a little more than twelve the other*.

The Cassowary has the lungs and the ten air cells as in other birds, particularly those of the large kind; it has that screen or black membrane peculiar to the eyes of birds, and that inner eyelid, which, as it is well known, is attached to the large angle of the eye by two common muscles †, and which is at momentary intervals drawn back over the *cornea*, by the action of a kind of muscular pulley, which merits all the curiosity of anatomists ‡.

The middle of the eastern part of Asia seems to be the true climate of the Cassowary, and its territory begins where that of the Ostrich ends. The latter seldom passes beyond the Ganges, as we have already seen; but the former is found in the Molucca islands, and in those of Banda, Java, Sumatra, and the corresponding tracts on

* "Eggs with excavated points," is Linnæus's expression, which is totally different from what Clusius asserts.

† Hist. de l'Acad. Royal des Sciences, tome ii.

‡ Mem. pour servir à l'Hist. des Anim.

the continent *. It is however far from being so numerous as the Ostrich, since a king of Joardam in the island of Java presented Scellinger, the captain of a Dutch vessel, with a Cassowary as a rare bird. The reason probably is, because the East Indies are much more populous than Africa; and it is well ascertained, that as men multiply, the wild animals gradually diminish, or retire into the more solitary tracts.

It is singular, that the Cassowary, the Ostrich, and the Touyou, which are the three largest birds that are known, are all natives of the torrid zone, which they seem to share among themselves, each enjoying its own territory, without incroaching on that of another. They are really all of them land animals, incapable of flying, but running with astonishing swiftness; all swallowing whatever comes in their way, grain, grass, flesh, bones, stones, flints, iron, glass, &c. In all, the neck is of great length, the legs tall and very strong, the claws fewer than in most birds, and in the Ostrich, there are still fewer than in the other two; in all, there is only one sort of feathers, unlike those of other birds and different in each of the three kinds; in all, the head and the arch of the neck are bare, the tail, properly so called, is wanting, the wings are but imperfect, furnished with a few pipes, without any vanes, as the quadrupeds that in-

† Voyages des Hollandois.

habit the warm countries have less hair than those of the regions of the north. All of them, in a word, seem to be natural productions of the torrid zone. But notwithstanding these points of agreement, they are still marked by characters that distinctly separate the species; the Ostrich is removed from the Galeated Cassowary and the Touyou, by its size, by its feet, like those of the camel, and by the nature of its plumage: it differs from the Cassowary particularly by its naked thighs and flanks, by the length and capacity of its intestines, and because it has no gall-bladder; and the Galeated Cassowary differs from the Touyou and the Ostrich, by its thighs being clothed with feathers, almost to the *tarsus*, by red barbils which hang from the neck, and also by the helmet on its head.

But in this last distinctive character we still perceive an analogy with the other two kinds; for this helmet is nothing but a protuberance of the bones of the cranium, which is covered with a sheath of horn; and we have seen, in the history of the Ostrich and the Touyou, that the upper part of the cranium of these two animals was similarly defended by a hard callous plate. [A]

[A] The specific character of the Galeated Cassowary in the Linnæan system is, that "it has three toes, with the helmet and "barbils naked." Latham erects the Cassowary into a new genus, distinguished by these properties: the *bill* depressed, straight, and somewhat conical; the nostrils oval; the *wings* very short, and unadapted

adapted for flying; the lower part of the *thighs* naked; the *feet* consisting of three toes, all of them turned forwards; the *tail* wanting. The Galeated Cassowary has the epithet of *Emeu*, and is discriminated by being "black, its top helmeted, its body beset with shaggy feathers, its head and top of the neck bare."

A new species of Cassowary has lately been discovered at Botany Bay, and termed the *New Holland* Cassowary. It is much larger than the former, being seven feet two inches long, while the other is only five feet and a half. It runs exceeding swiftly, and its flesh is palatable food. Latham thus characterizes it:—"It is blackish, its crown flat, its body bristly, its head and neck planted with quills, its legs ferrated behind."—The bill is black; the head, the neck, and the whole of the body, covered with quills, which are variegated with dusky and gray colours; the throat is bare and bluish; the quills on the body are a little bent at the point; the feet are dusky, and behind they are rough through their whole length with protuberances.

The HOODED DODO.

Le Dronte, Buff.*Didus Ineptus*, Gmel. and Lath.*Struthio Cucullatus*, Linn. 10th edit.*Raphus*, Briss.*Cygnus Cucullatus*, Nierem. Ray and Will.*Gallus Gallinaceus Peregrinus*, Clus.*Dod-Acrsen*, or *Walgh-Vogel*, Herb.

AGILITY is commonly conceived to be peculiarly the property of the winged tribe; but if we regard it as an essential character, the Dodo must be excluded from the class; for its proportions and its movements give an idea of the most heavy and awkward of organized beings. Figure to yourself a body that is bulky, and almost cubical, supported with difficulty on two exceedingly thick and short pillars, and carrying a head so strangely shaped, that we might take it for the whim of a caricature painter; and this head, resting on a huge swelling neck, consists almost entirely of an enormous beak, in which are set two large black eyes encircled with a ring of white, and where the parting of the mandibles runs beyond the eyes, and almost quite to the ears; these two mandibles, concave in the middle, inflated at both ends, and bent backwards at the point, resemble two sharp spoons laid on each other, their convexity being turned outwards; all which produces a stupid

vora-

voracious appearance, and which, to complete the deformity, is furnished with an edging of feathers, which, accompanying the curvature of the base of the bill, stretch to a point on the forehead, and then arch round the face like a cowl, whence the bird has received the name of *Capuchined Swan* (*Cygnus Cucullatus*).

Magnitude, which in animals implies strength, produces nothing in this bird but oppressive weight. The Ostrich, the Touyou, and the Galeated Cassowary, indeed, are also incapable of flying, but they run with astonishing speed. The Dodo seems to be clogged by its unwieldy carcass, and can hardly collect force sufficient to drag it along. It is the most inactive of the feathered race. It consists, we might say, of brute passive matter, where the living organic particles are too sparingly disseminated. It has wings; but these are too short and too feeble to raise it from the ground. It has a tail, but it is disproportioned, and out of place. We might take it for a tortoise disguised in the clothing of the winged tribe; and Nature, in bestowing these useless ornaments, seems to have desired to add clumsiness to its unwieldy mass, and to render it more disgusting, by reminding us at the same time that it is a bird.

The first Dutch that saw it in the island of Mauritius, now the Isle of France*, named it

* The Portuguese had before called that island *Ilha do Cirne*; that is, *Island of Swans*; probably because of the Hooded Dodos they had seen on it, and which they had mistaken for swans.

Walgh-Vogel, Disgusting Bird, both on account of its ugly figure, and the rank smell. This singular bird is very large, and is only inferior in size to the three preceding; for it exceeds the turkey and the swan.

Briffon assigns as one of the characters, its having the lower part of the legs naked; yet in the 294th plate of Edwards it is represented feathered, not only as low as the leg, but even to the articulation with the tarsus. The upper mandible is blackish throughout, except at the hook, where there is a red spot; the holes of the nostrils are placed very near its middle, and close to the two transverse folds, which rise at this part on the surface.

The feathers of the Dodo are in general very soft, and their predominating colour is gray, which is deeper on all the upper part of the body and the lower part of the legs, but brighter on the stomach, the belly, and the whole of the under part of the body. There is some yellow and white on the quill-feathers of the wings, and those of the tail, which appear frizzled, and are but few in number. Clusius reckons only four or five.

The feet and toes are yellow, and the nails black; each foot has four toes, three of which are placed before, and the fourth behind, and this hind one has the longest nail.

Some have pretended that there was commonly lodged in the stomach of the Dodo a stone

stone of the size of the hand, and to which they failed not to ascribe the same origin and the same virtues as to the bezoars. But Clusius, who saw two of these stones of different shapes, and bulky, is of opinion, that the bird had swallowed them like the granivorous class, and that they were not formed in its stomach.

The Dodo is a native of the islands of France and Bourbon, and is probably found also on the nearest parts of the continent, though I know of no traveller who mentions his seeing it, except on these islands.

Some Dutch call it *Dodaers*; and the Portuguese and English, *Dodo*; however, it is named by the natives *Dronte*. It has also been called *Hooded Dodo*, *Foreign Cock*, *Walgh-Vogel*; and Mæhring, who has found none of these names to his liking, has formed that of *Ruphus*, which Brisson has adopted for his Latin designation, as if there was any advantage in giving the same animal a different appellation in each language, when the real effect of the multitude of synonyms is to occasion embarrassment and confusion. "Do not multiply existences," was once the maxim of philosophers; but at present we have constantly reason to remind naturalists not to multiply names without necessity. [A]

[A] Linnæus makes the Dodo generic, and to include three species, viz. The Hooded Dodo of this article, the Solitary Bird, and the Nazarene Bird. The two latter are joined together in the following article. The Hooded Dodo has the epithet *Ineptus*, and is characterized by being "black with whitish clouds, and its feet "having four toes."

The SOLITARY DODO, and NAZARENE DODO.

Le Solitaire, et L'Oiseau de Nazare, Buff.
Didus Solitarius, et Didus Nazarenus, Gmel.

THE Solitary Bird mentioned by Leguat* and Carré†, and the Bird of Nazareth by Father Cauche‡, seem to bear a great resemblance to the Dodo, though they still differ in several points. I have thought proper to produce what these travellers relate on this subject, since, if these three names are applicable only to the same individual species, the different relations will serve to complete the history of the bird; if on the contrary, they refer to three different species, what I shall give will be considered as the beginning of the history of each, or at least as an intimation of a new species to be examined, in the same manner as it is usual in geographical charts to mark countries unexplored. At all events, it is to be desired that those naturalists, who have an opportunity of examining these birds more closely, would compare them if possible, and obtain a more precise and

* Voyage en Deux Iles Desertes des Indes Orientales.

† Hist. Gen. des Voyag.

‡ Description de l'Ile de Madagascar.

distinct

distinct information. Queries alone, made with respect to facts with which we are unacquainted, have more than once led to a discovery.

The Solitary Dodo of the island of Rodrigue is a very large bird, since some males weigh forty-five pounds. The plumage of these is commonly mixed with gray and brown; but in the females, sometimes brown, sometimes a light yellow, predominates. Carré says, that the colour of the plumage of these birds is glossy, bordering on yellow; he adds, that it is exceedingly beautiful.

The females have a protuberance over the bill resembling a widow's peak; their feathers bunch out on both sides of the breast into two white tufts, somewhat like a woman's bosom. The feathers of the thighs are rounded towards the end in the shape of shells, which has a very fine effect; and, as if the females were conscious of their beauty, they take great pains in arranging their plumage, smoothing it with their bill, and adjusting it almost continually, so that not a single feather is misplaced. According to Leguat, their whole appearance is noble and graceful; and this traveller even affirms that their pleasing demeanour has often been the means of saving their life. If this be the case, and if the Solitary and the Dodo be of the same species, we must admit a very wide difference between the male and the female in regard to their figure.

This

This bird has some resemblance to the turkey ; its legs differ only in being taller, and the bill in being more hooked ; its neck is also proportionally longer, the eye black and lively, the head without a crest or tuft, and with scarcely any tail ; its hind part, which is round like the buttocks of a horse, is covered with broad feathers.

The wings of the Solitary Dodo do not enable it to fly ; but they are not useless in other respects. The pinion-bone swells near the end into a spherical button, which is concealed under the feathers, and serves two purposes ; in the first place for defence, to which the bill is also subservient ; in the second, to make a kind of clapping or whirling twenty or thirty times on the same side in the space of four or five minutes. In this way, it is said, the male invites his mate with a noise like that of a kestrel, and which is heard at the distance of two hundred paces.

These birds are rarely seen in flocks, though the species is pretty numerous ; some affirm even that scarcely two are ever found together *.

They seek unfrequented spots where to lay their eggs ; they construct their nest with the leaves of the palm-tree heaped up a foot and a half high ; into this nest the female drops an egg much larger than that of a goose ; and the male participates in the office of hatching.

* Hist. Gen. des Voyages, tome ix.

During the whole time of the incubation, and even that of the education, they suffer no bird of the same kind to approach within two hundred paces; and it is pretended that the male drives away the males, and that the female drives away the females; an observation which could hardly be made on a bird that passes its life in the wildest and the most sequestered spots.

The egg (for it seems that these birds lay only one, or rather only cover one at a time) requires seven weeks * to hatch, and the young one cannot provide for itself until some months afterwards. During all that time it is watched with paternal care, and this circumstance alone gives greater force to the instinctive affection than in the Ostrich, which is abandoned from its birth, and never afterwards receives the fostering assiduities of its parents, and, being without any intimacy with them, is deprived of the advantages of their society, which, as I have elsewhere remarked, is the first education of animals, and which most of all contributes to develop their native powers; and hence the Ostrich is considered as the most stupid of the feathered creation.

After the education of the young Solitary Dodo is completed, the parents still continue

* Aristotle allows thirty days for the incubation of the large birds, such as the eagle, the bustard, and the goose; he does not indeed mention the Ostrich in that place. *Hist. Anim.* lib. vi.

united, and on the whole faithful to each other, though sometimes they intermix with other birds of the same species. The care which in common they have bestowed on the fruit of their union seems to rivet their attachment, and when the season again invites, they renew their loves.

It is asserted, that whatever be their age, a stone is always found in their gizzard, as in the Hooded Dodo : this stone is as large as a hen's egg, flat on the one side and convex on the other, somewhat rough, and so hard as to be fit for a whetstone. It is added, that it is always alone in the stomach, and is too bulky to pass through the intermediate duct which forms the only communication between the craw and the gizzard ; and hence it is inferred, that this stone is formed naturally in the gizzard of the Solitary, and in the same way as the bezoars. But for my part, I should only conclude that this bird is granivorous, and swallows stones and pebbles like all the rest of that class, particularly the Ostrich, the Touyou, the Cassowary, the Hooded Dodo, and that the passage between the craw and the gizzard admits of a greater dilatation than Leguat supposed.

The epithet of *Solitary* alone indicates sufficiently its native wildness ; and this is indeed what we should expect. Bred sequestered without a single companion, deprived of the society of its equals, and connected to its parents

only by the ties of dependence and want, its latent powers are never awakened and expanded. But it appears still more timid than savage; it even ventures to come nigh one, and with an air of familiarity, especially if it has little experience, and is not scared by a sudden onset; but it can never be tamed. It is difficult to ensnare it in the woods, where it can elude the sportsman by cunning and dexterity in concealing itself; but as it does not run fast, it is easily caught in the plains and open fields; when overtaken, it utters not a complaint, but wastes its grief in tears, and obstinately refuses every kind of food. M. Caron, director of the French East India Company's affairs at Madagascar, put two of them, from the isle of Bourbon, on board a vessel, to be presented to the Royal Cabinet, but they would neither eat nor drink, and died in the passage.

The proper season for catching them is from March to September, which is the winter in those countries they inhabit; it is also the time when they are fattest. Their flesh, especially when young, is of an excellent flavour.

Such is the general idea which Leguat gives of the Hermit or Solitary Dodo; and he speaks not only as an eye-witness, but as an observer, who had for a long time studied the habits of the bird; and, indeed, his account, though mar-
red

red in some places with fabulous notions*, contains more historical details in regard to the Hermit than I have been able to discover in a crowd of writings on those birds that are more generally and more anciently known. The Ostrich has been a subject of discourse for thirty centuries, and yet we are still ignorant how many eggs it lays, and how long its incubation lasts. [A]

The Bird of Nazareth†, so called, no doubt, by corruption, because it was found in the island of Nazare, was observed by F. Cauche in the island of Mauritius. It is a very large bird, and more bulky than the swan. Instead of plumage, its body is entirely covered with a black down; yet it has some feathers, which are black on the wings and frizzled on the rump, which serves for a tail; it has a thick bill, incurvated somewhat below; the legs tall and covered with scales, three toes on each foot; its cry resembles that of a gosling, and its flesh has a tolerable relish.

The female lays only one egg, which is white, and about the size of a halfpenny roll. Beside

* For instance, he fancies a sort of marriage ceremony is performed at the first congress of the young Hermits; the story of the stone in the stomach, &c.

[A] The specific character of the Solitary Dodo: "It is variegated with gray and dusky, and its feet are furnished with four toes."

† The island of Nazare is of a higher latitude than the island of Mauritius, being seventeen degrees south. . . *Description de Madagascar, par Fr. Cauche.*

it, there is generally found a white stone of the size of a hen's egg; and this perhaps serves the same purpose with the balls of chalk which the farmers place in the nests where they wish their hens to lay. The Nazare deposits its egg on the ground in the forests, on small heaps of grass and leaves which it makes. When the young one is killed, a gray stone is found in its gizzard. The figure of this bird, it would appear from a note, is to be met with in "*the Journal of the second Voyage performed by the Dutch to the East Indies*;" and they called it the *Bird of Nausea*. These last words seem decidedly to ascertain the identity between the species of this bird and that of the Dodo; and would indeed amount to a proof, if their descriptions did not mark essential differences, particularly in the number of their toes. But not to enter into a minute discussion, or venture to solve a problem, for which we are not in possession yet of the necessary *data*, I shall barely state those points of resemblance and contrast, which may be discovered from a comparison of the three descriptions. [A]

It readily appears then from a comparison, that these three birds belong to the same climate, and are natives of almost the same tracts.

[A] Gmelin and Latham bestow on this bird the appellation *Didus Nazareus*, or *Nazarene Dodo*. They regard it as a distinct species from the Solitary Dodo, and as discriminated by being black, and having three toes on each foot.

The Hooded Dodo inhabits the Islands of Bourbon and the Isle of France; the Hermit resided in the island of Rodrigue, when it was a mere waste, and has been seen in the Island of Bourbon; the Bird of Nazare has been found in that island and in the Isle of France: but these four islands are contiguous to each other; and it is to be remarked, that none of the birds has ever been discovered on the continent.

All these birds resemble each other more or less in point of size, inability to fly, the form of their wings, of their tail, and their whole body; and in all of them, one or more stones have been found in their gizzard, which implies that they are granivorous. In all of them, the gait is slow; for though Leguat does not mention that of the Hermit, we can easily infer from the figure which he gives of the female, that it is a sluggish bird.

Finally, Comparing them two and two, we perceive that the plumage of the Hooded Dodo approaches that of the Hermit in its colour, and that of the Bird of Nazare, by its downy quality; and that these two last agree also in only laying and hatching a single egg.

Both the Dodo and the Bird of Nazare have been considered as having a disgusting appearance.

Such are the resemblances.—The differences are as follow:—

The Hermit has the feathers on its thighs rounded at the end like shells; which proves that

that they are true feathers, such as those of ordinary birds, and not a kind of down, as is the case with the Hooded Dodo and the Bird of Nazare.

The female Hermit has two white tufts of feathers on its breast; nothing similar is mentioned in regard to the female of the two others.

In the Hooded Dodo, the feathers which border the base of the bill are disposed in the shape of a cowl; and the appearance is so striking, that it has given foundation for its characteristic name (*Cycnus Cucullatus*). Besides, the eyes are placed in the bill, which is no less remarkable; and we cannot doubt that Leguat saw nothing like this in the Hermit, since he only mentions with regard to that bird, which he had viewed so often, that there is neither crest nor tuft on its head; and Cauche, in speaking of the Bird of Nazare, takes no notice of any thing of this kind.

The two last are tall; but the Hooded Dodo has very thick short legs.

The Hooded Dodo and the Hermit, whose legs are said to resemble those of the turkey, have four toes, and the Bird of Nazare, according to Cauche, has only three.

The Hermit makes a remarkable beating with its wings, which has not been observed in the others.

Lastly, It appears that the flesh of the Hermits, and especially of the young ones, is ex-

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cellent; that of the Bird of Nazare indifferent, and that of the Hooded Dodo, bad.

If this comparison, which has been made with the greatest accuracy, does not allow us to decide on the question proposed, it is because these observations are neither sufficiently numerous nor certain. It is therefore to be wished, that those travellers, and particularly those naturalists, who have it in their power, would examine these three birds, and form an exact description of them, attending chiefly to the following points:

The shape of the head and bill.

The quality of the plumage.

The form and dimensions of the feet.

The distinguishing marks between the male and female.

The differences between the chicks and adults.

Their manner of walking and running.

Adding as much as possible of what can be learnt from the natives respecting their pairing, copulating, building their nest, and hatching.

The number, shape, colour, weight, and bulk of their eggs.

The time of incubation.

The manner of rearing their young.

Their mode of feeding.

Finally, The form and dimensions of their stomach, of their intestines, and of their sexual organs.

N O T E S

By the TRANSLATOR.Vol. I. Page 12. Line 13. [*Density of the Air.*]

THE observation of our ingenious author, that sound is much more audible during the night than in the heat of the day, is curious and interesting; but the reason which he assigns for it, though specious, appears to be altogether inadequate to the effect. Air expands one-four-hundredth of its bulk for every degree of heat on Fahrenheit's scale; and therefore, supposing the difference of temperature between the night and the day to be twenty degrees, which is a very large allowance, the variation of the air's density would not exceed one-twentieth; a quantity too small surely to be distinctly perceived. The atmosphere often undergoes greater changes even in serene weather; and an equal difference would take place in ascending one thousand four hundred feet from the surface; yet in neither of these cases are we conscious of any alteration in the force of sound. Much undoubtedly must be ascribed to the stillness and obscurity of the night, when the exercise of the other senses is in a manner suspended, and that of hearing engages almost the whole attention. During the meridian heats, also, various noises, the warble of birds, the hum of insects, and the chearing calls of rural labour, at once assail the ear, and render that organ less susceptible to other

other impressions. But there is another cause which seems generally to have been over-looked, though I am convinced that it contributes most of all to the effect.

The vivacity of the intimation given by the senses depends not so much upon the force of the impression as upon its simplicity and distinctness. Hence, in high winds, sound is heard at only a short distance, because the aërial undulations are then disturbed and confounded. In calm weather, too, when the sky is clear, and the sun-beams act fiercely on the surface of the earth, the heated air continually ascends, and this intestine motion deranges the undulations in their horizontal progress. After the close of the day, an equilibrium of temperature is again established between the higher and lower strata of the atmosphere, which, during the tranquillity of the night, receives and propagates distinctly every impression.

Vol. I. Page 20. Line 8. [*Specific Gravity of Birds.*]

THE lightness of the feathers and the hollowness of the bones of birds have generally been assigned as the chief causes of the rapidity of their flight. And some naturalists, giving reins to their imagination, have alleged, that, as the cavities are filled with a sort of inflammable gas, these animals are buoyed up in the atmosphere like balloons. Such reasonings are not superficial merely, they are absurd. The specific gravity of quadrupeds is hardly inferior to that of water, and therefore about nine hundred times greater than that of air; and admitting that in birds an equal quantity of matter occupies a triple space, which is surely an ample concession, they would
lose

lose only the three-hundredth part of their weight at the surface of the earth, and still less in the superior regions of the atmosphere. Will any person insist on the efficacy of so trifling a cause? Nay, the diminished gravity of birds, far from assisting their flight, produces the opposite effect in a very high degree; for the resistance of the air, the great impediment to their motion, is proportioned, when other circumstances are alike, to the extent of surface which they present. This observation is remarkably exemplified in the Bird of Paradise, which is clothed with such a profusion of feathers, that it cannot face the gentlest gale, but is carried involuntarily into the stream.

The obstruction which birds encounter in their flight, is much more considerable than might at first be apprehended: and this position is evinced by a very obvious fact:—Most species fly apparently with equal ease, whether before or against a moderate wind, and therefore the stroke of the blast is greatly inferior to the ordinary resistance experienced in their passage through the air.

The rapid flight of birds results wholly from the prodigious power exerted by their large pectoral muscles. This force may be resolved into two portions; the one employed in supporting the birds in the air, the other in impelling it through that resisting medium. The former is constant, and proportioned to the mass; the latter depends on a variety of circumstances, — the quantity of surface, the shape, the velocity, and the density of the surrounding element. The relative proportion of these two forces must therefore vary extremely. In very large birds, their cumbrous weight can hardly be borne up, while their quantity of surface, which is comparatively small, occasions

occasions not any considerable obstruction to their motion. It is thus that the Ostrich supports her body by means of her feet, and carries herself forward chiefly by the action of her wings. On the other hand, the surface is so great in proportion to the weight in very small birds, that almost their whole exertions are employed in overcoming the resistance of the air. If they intermit the strokes of their wings, the motion they have acquired is quickly extinguished: thence the sudden deflections which distinguish their flight. Of this, a remarkable instance is the Humming Bird, which, for its fluttering irregular progress, has been aptly compared to the humble-bee.

Nothing contributes so much to facilitate the motion of Birds through the air, as the acuteness of the angle formed between their shoulders and their bill. For that reason, they extend their head, and endeavour to give their body as taper a shape as possible. Hence also, the birds which are most remarkable for their fleetness, have generally long necks; such are most of the sea-fowl, which undoubtedly exercise their wings more than those of the land.

The resistance which a body suffers in its passage through a fluid is proportional to the square of the velocity. In slow motions, therefore, it is inconsiderable, but accumulates most astonishingly with an increase of celerity. Hence birds that differ widely in point of strength, fly pretty nearly with the same rapidity; for it would require four times the force to give double the velocity, nine times to give the triple, and so forth. We likewise see the reason why the difference is not very great between the ordinary flight of a bird, and that wherein it exerts itself to the utmost.

In

In similar cases the force necessary to impel a bird through the air is proportioned to the density of that medium. It will fly therefore with most ease in the higher regions of the atmosphere; but this advantage is modified, and often over-balanced, by another circumstance. The weight of the bird requires constantly the same force to support it; and this force, in the present instance, can be produced only by the greater celerity of stroke; a condition which is not always compatible with the structure of the animal. This inconvenience will be chiefly felt by the larger species of birds, which, for that reason, can never rise to any vast height. The little tribes, on the contrary, are invited to soar far beyond the region of the clouds, where they glide with wonderful facility. What alone seems to set bounds to their ascent, is the cold which prevails at those heights. And this influence is not so great as might at first be apprehended; for a stream of rarefied air operates slowly in robbing a body of its heat, and therefore gives a weak sensation of cold. It is extremely probable that small birds rise three or four miles into the air, where that fluid has only half the density that obtains at the surface. At that height the cold will indeed be sixty degrees; but its effects will be equivalent to a cold of only thirty degrees at the surface of the earth; which is less than the difference that often happens between the temperature of our spring and that of our summer. The care of providing food commonly detains them indeed near the surface; but when they retire into other climates, they mount to the lofty regions of the atmosphere, and pursue their arduous journey far beyond the reach of human sight. No wonder then that the migrations of the small birds should have given occasion to so

much disputation ; while those of the larger species, such as the Goose, the Stork, and the Crane, have been universally admitted.

As a bird in flying is actuated by two forces, the one impelling it upwards, the other forwards ; the stroke of its wing must be performed in an oblique direction, between the vertical and the horizontal ; and it will be more inclined to the latter in proportion to the smallness of the bird, and the swiftness of its motion. This is manifest in the case of Pigeons, which are so noted for their rapid flight. The position of the tail alone might indeed determine the direction of a bird's track ; but that expedient would be attended with an expence of force which Nature has employed with such frugality. In short, it is extremely probable, that from observing the insertion of the wings, a physiologist could infer with tolerable accuracy, the usual rate at which a bird flies.

Birds often seem to rest suspended in the air ; but the appearance is illusory, for the force required to support them is in every case the same. Either they suffer themselves to sink gently on their expanded wings through a certain space, and then by a few lengthened strokes, recover their former station ; or they maintain their place by the nimble and vigorous quivering of their pinions, which is frequently discernible.

The tail of a bird has often been compared to the rudder of a ship ; but the analogy is incomplete ; for the motion of a ship is confined invariably to the same plane, while that of a bird is performed in every possible direction. The position of the tail affects only the angle of ascent or descent ; it is the inclination of the head which turns the course to the one side or the other.

The

The remarkable hollowness of the bones, particularly those of the wings, though it by no means contributes to the effect ascribed to it in the text, is subservient to several very useful purposes. It adds greatly to the strength of the bones; and this principle seems to have directed Nature in many of her animal and vegetable productions. Were the stalks, for instance, of tall slender plants compacted into a solid form, they would be unable to resist the smallest violence. As the cavities of the bones in birds communicate with the lungs, they must conspire to form and augment the voice. Analogy clearly leads to this conclusion, since the *antrum*, or small cavity near the bottom of the frontal bone, at the origin of the nostrils, is found by experience to assist the human voice. But the most essential use of the hollowness of the bones is, perhaps, to afford an ample surface for the insertion of the powerful muscles.

Feathers, like the fly in mechanics, serve to equalize the motion of birds, but at a great expence of force. Their principal use, however, is certainly to confine the animal warmth which is generated, or rather evolved, by the process of respiration. Loose spongy substances, such as cotton, hair, wool, and particularly feathers, are slow conductors of heat, and therefore admirably calculated for the purpose of clothing. The waste of vital heat on the surface of the body is occasioned by the successive contact of air, and proportioned to the quickness of the application. It is hence that a strong wind will, even in temperate weather, affect us with sensations of cold, though we often feel very comfortable during hard frost, when the air is still. Birds therefore, more than any other animals, must be exposed to this waste of heat;

heat; and accordingly they are clothed with a thicker and richer garb. We may also remark, that small birds are for their size better feathered than large ones, as the surface which they expose to the cooling stream of air is proportionally greater. It is thus that Nature kindly suits her provisions to the wants of her creatures. Man alone is sent into the world naked and helpless, and perpetually urged by his necessities to the exercise and cultivation of his faculties. This view of the utility of physical evil is finely illustrated by the elegant Virgil.

“ ————— Pater ipse colendi

Haud facilem esse viam voluit, primusque per artem
Movit agros, curis acuens mortalia corda :

* * * *

Ille malum virus serpentibus addidit atris,
Prædareque lupos jussit, pontumque moveri,
Mellaque decussit foliis. ignemque removit,
Et passim rivis currentia vina repressit :
Ut varias usus meditando extunderet artes
Paulatim, et sulcis frumenti quæreret herbam,
Et filicis venis abstrusum excuderet ignem.

GEOR. Lib. I. 129.

The fire of gods and men, with loud decrees,
Forbids our plenty to be bought with ease ;
And wills that mortal men, inur'd to toil,
Should exercise, with pains, the grudging soil.

* * * *

Jove added venom to the viper's brood,
And swell'd with raging storms the peaceful flood :
Commission'd hungry wolves t' infest the fold,
And shook from oaken leaves the liquid gold.
Remov'd from human reach the cheerful fire,
And from the rivers bade the wine retire :
'That studious need might useful arts explore,
From furrow'd fields to reap the foodful store ;
And force the veins of clashing flints t' expire
'The lurking seeds of their celestial fire.

DRYDEN.

END OF THE FIRST VOLUME.



